

THE IMPACT OF SUNK COST ON CUSTOMER LOYALTY

By

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A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL OF THE
UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1989

ACKNOWLEDGMENTS

Sincere thanks are owed to several individuals for their help in getting me where I am. First, I would like to thank my parents, Sharon and Barry Dick, for instilling in me the desire to learn and for stressing the importance of education as well as for providing both emotional and financial support during my education. Thanks are also offered to Dr. Joseph Alba for sharing his insight into consumer information processing and decision making during the pretesting of the experiments. My supervisory committee deserves special recognition for their many hours of help and guidance throughout this endeavor. Thanks go to Dr. Richard Romano for sharing his insight about the economics literature. Thanks also go to Dr. John Lynch for his suggestions concerning data analysis, presentation, and interpretation. And very special thanks go to Dr. Barton Weitz for introducing the topic of customer loyalty to me and devoting many hours of work in all phases of this project. He was a tremendous help to me in this process and a pleasure to work with. He demonstrated to me that although dissertations are a tremendous amount of work, they need not be overly distressful. There is no doubt that my students will indeed be thankful that Bart was my chairman. Finally, I would like to thank my wife, Pam, for her love, understanding and support throughout ten years of schooling.

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Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

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August 1989

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Major Department: Marketing

Cultivating customer loyalty constitutes the underlying objective of much of strategic planning and has been frequently discussed in the marketing literature. This dissertation attempts to understand more fully the notions underlying customer loyalty at the individual level. A conceptual framework is presented which integrates key theoretical elements underlying the phenomenon.

Empirically, the dissertation examines the impact of sunk cost on customer loyalty, a topic previously ignored in the consumer behavior literature. From a rational economic perspective, sunk costs (i.e., costs already expended which are associated with an alternative but have no marginal value) should be ignored when making decisions about future expenditures. However, limited work in the psychological and organizational behavior literature suggests that these types of sunk costs may often affect consumers in choice settings. This research examines the nature and extent of sunk cost effects in a repetitive purchase situation.

The research utilizes an original computer based shopping simulation developed by the author. In the simulation, subjects either incurred or did not incur a sunk cost (a membership fee for joining a video tape rental club). Then subjects made a number of choices concerning which video rental store to visit on a series of shopping trips. Attitude, confidence in attitude, attitude accessibility, purchase intention and motivation to search measures were also taken.

The research indicated a very strong impact of sunk cost on choice of video store. Subjects who incurred the sunk cost preferred to patronize the store they paid the fee to as opposed to another competitive store possessing the same marginal benefits but requiring no initiation fee. Subjects not required to pay the fee were significantly less likely to patronize the same store. Questions still remain about the extent to which consumers are aware of the impact of sunk costs on their behavior and the relationship between the size of the sunk cost and information processing strategies utilized by consumers in decision making.

Implications about future research in customer loyalty concerning sunk costs as well as other aspects of loyalty are specified.

CHAPTER ONE INTRODUCTION

The central thrust of the marketing activities of an individual firm is often viewed in terms of development, maintenance, or enhancement of consumers' loyalty towards its products or services. Indeed, brand loyalty constitutes the underlying objective of much of strategic planning (Kotler 1984). Brand loyalty represents a basis of sustainable competitive advantage that can be realized through marketing efforts. While brand loyalty research has typically focused on frequently purchased consumer package goods, the loyalty concept is also important for industrial goods (vendor loyalty) and services (store loyalty).¹ Berry (1986) emphasizes that customer loyalty is a big issue that ripe for academic inquiry. Retailers, facing declining store loyalty and intense inter-brand competition, need guidance to develop effective ways to communicate with existing customers, resell them, and win their loyalty. Consequently, a vast amount of marketing and consumer behavior research has examined brand loyal behavior.

Unfortunately, the majority of brand loyalty research has focused primarily on issues of measurement (i.e., Jacoby and Chestnut 1978) and occasionally on correlates of brand loyalty with consumer characteristics (e.g., Cunningham 1967; Frank 1967). The need to define brand loyalty beyond its operational (mostly purchase related) measures was pioneered by Day (1969); Sheth and Park (1974); and Jacoby and his colleagues

(Jacoby and Olson 1970; Jacoby and Kyner 1973; Jacoby and Chestnut 1978). However, the nomology of brand loyalty in behavior theory, i.e., its relationships with other concepts in the expanding vocabulary of consumer research, remains unclear. It is seen as a construct undergoing a maturation process striving for theoretical legitimacy and practical usefulness.

The present status of brand loyalty research can be characterized as that of a construct undergoing substantial revision and redirection in measurement orientation. From an overly behavioral macro approach, it is gradually making the transition to a more micro understanding of the cognitive mechanisms underlying choice behavior. If brand loyalty is ever to be managed, not just measured, it will have to be elaborated in a much more detailed description of cognitive activities. (Jacoby and Chestnut 1978, p. 104).

This dissertation attempts to understand more fully the notions underlying brand loyalty at an individual level, and to specify the nature of its relationships with other relevant psychological states and activities. To this end a conceptual framework is presented which integrates key theoretical elements underlying the brand loyalty phenomenon. While the concept of brand loyalty has been applied primarily to frequently purchased consumer goods, this dissertation adopts a broader perspective using the term brand loyalty to embrace loyalty shown by customers towards providers of services, stores, and suppliers as well as branded consumer package goods.

Following the development of the framework, the dissertation empirically examines in detail one specific area identified in the framework--the concept of switching costs. Switching costs has received considerable attention in the economics literature, primarily with respect to the costs to a firm associated with adopting a new technology (e.g.,

VonWeizsacker 1984), and in the strategic management literature, with respect to building competitive advantage in industrial markets (e.g., Porter 1980 and Jackson 1986). Although this concept potentially plays a major role in the consumer sector, it has been essentially ignored in the consumer behavior literature to date. The dissertation examines a common scenario in which switching costs may impact on the purchase of consumer goods or services. A computerized research paradigm is developed to explore the role of switching costs in the formation and persistence of brand loyal behavior.

The structure of this dissertation is as follows. Chapter Two begins with a review of some key conceptual issues associated with brand loyalty. This review reveals a plethora of definitions used by various authors to define loyalty. A case is made for the adoption of a conceptual network in which loyalty consists of the interaction of five key variables: relative attitude; motivation to search for information; resistance to influence attempts; stable predisposition towards purchase; and repeat purchase behavior. Thus, loyalty is conceptualized as a syndrome consisting of all five of these variables. The syndrome captures all of the aspects of loyalty identified by previous definitions; however, it is less restrictive than previous definitions because it explicitly recognizes the interaction between the key elements. Relevant literature is reviewed in the context of the syndrome framework and a number of research propositions are presented.

In Chapter Three, the specific focus of the dissertation is articulated and the notion of switching costs and their relationship to loyalty are introduced. The related notion of sunk costs is emphasized.

Normatively, sunk costs should be ignored when making choices from among alternatives unless the cost is tied to an asset which is transferable. If, however, the cost is truly sunk (e.g., a nontransferable membership fee paid to join a health club), then the cost should be ignored in future decision making. In this case, decisions should be made with respect to expected costs and benefits of the new alternatives.

Psychological and organizational behavior research, however, suggests that sunk costs often affect consumers in choice settings. In some cases, very small commitments of resources result in a great deal of commitment to a course of action (or an alternative). Thus, the imposition of sunk costs may be an effective strategy for marketers to adopt. However, very little research has examined the nature of sunk cost effects in consumer settings. This dissertation examines the nature of sunk costs in a common consumer setting (paying a club membership fee). The focus is on the determinants of the effectiveness of sunk costs at producing and maintaining customer loyalty.

Three possible moderators of sunk cost effects are discussed. First, the notion of psychological amortization is introduced. The key idea here is that once a consumer has incurred a sunk cost (e.g., paid an initiation fee), even though the sunk cost should be ignored in future decision making, it will not. However, the impact of that cost on the consumer's future behavior should diminish over time and as he acquires benefits as a result of incurring the cost (i.e., the cost is amortized psychologically). Second, the notion of an implicit contract is discussed. It is likely that when consumers incur a sunk cost (i.e., pay a membership fee) they are presented with a formal explicit contract. In

cases where no explicit contract is provided consumers may form an implicit contract. The notion of an implicit contract is studied here and it is hypothesized that if an implicit contract is viewed by the consumer to be violated by the store, then the impact of the sunk cost may be diminished leading to more switching. Finally, the impact of problem framing is explored vis-a-vis the effect of sunk costs on customer loyalty. A formal statement of these hypotheses is provided at the end of Chapter Three.

Chapter Four presents the methodology employed to test these hypotheses. A computer based experimental shopping simulation was developed. The methodology was designed to test the specific hypotheses regarding the effects of the relationships among sunk costs, psychological amortization, and problem framing on choice. The paradigm was also designed to measure other dependent variables identified in the framework (relative attitude and motivation to search for information).

Chapter Five presents the results of the experiment, which were at best mixed. Support was found for the idea that sunk costs have an impact on choice; however, the more detailed hypotheses concerning psychological amortization, problem framing and the impact of breaking a psychological contract received very limited support. Correlational evidence supported most of the relationships suggested in the framework.

Chapter Six provides a discussion of the results and a proposal for an additional research study utilizing a similar computer based experimental paradigm.

Note

1. These various forms of loyalty pertain to more than just "brands" narrowly construed. Loyalty may also pertain to object classes of varying degrees of breadth--e.g., to sets of brands, product forms and product classes. It can also pertain not just to products, but to services suppliers and stores. While the term brand loyalty is used throughout the text, it is recognized that the term and conceptual framework presented in Chapter Two can be applied in this broader context.

CHAPTER TWO CUSTOMER LOYALTY: TOWARDS AN INTEGRATED CONCEPTUAL FRAMEWORK

Chapter Overview

A great deal of empirical research has considered the concept of brand loyalty; however, the majority of this research has focused on measurement issues. This chapter develops a conceptual model of the phenomenon of brand loyalty. Brand loyalty is conceived of as a syndrome of five inter-related elements--repeat purchase behavior, predisposition towards purchase, relative attitude, resistance to influence attempts, and motivation to search for information. Relevant background literature is reviewed, several testable propositions are developed, and managerial implications are specified.

Brand Loyalty: Definitional Issues

A review of the brand loyalty literature reveals a considerable diversity of measures. For example, Jacoby and Chestnut (1978) cite 53 different definitions in their review. Unfortunately, these definitions are for the most part strictly operational and devoid of any theoretical meaning.

Behavior Measures

Traditionally, brand loyalty research has utilized a variety of behavioral measures to determine brand loyalty from panel data. These measures include proportion of purchase (e.g., Blattberg and Sen 1974), purchase sequence (e.g., Kahn et al. 1986) and probability of purchase

(e.g., Frank 1962). Jacoby and Chestnut (1978) have criticized these strictly behavioral measures as lacking in conceptual basis and only capturing the static outcome of a dynamic process. These definitions make no attempt to understand the factors underlying and leading up to brand loyal purchase behavior. For example, high repeat purchase frequency may reflect situational constraints such as brands stocked by retailers, while low repeat purchase may simply indicate different usage situations, variety seeking, or heterogeneity of preferences within a buying unit. The behavioral definitions, consequently, are insufficient to explain how and why brand loyalty is developed and/or modified.

Psychological Considerations

To address this situation, there is a distinct movement away from strictly behavioral measures of customer loyalty toward more theoretically meaningful measures capturing various elements of the consumer's psychological states (most notably, attitudes) as well as purchase behavior. This approach initiated by Cunningham (1967) and Day (1969) and subsequently followed up in the work of Sheth and Park (1974) and Jacoby and his colleagues (Jacoby and Olson 1970; Jacoby and Kyner 1973; Jacoby and Chestnut 1978) reflects a rejection of a long history of research which measured brand loyalty utilizing only behavioral measures.

Day conceived of brand loyalty as consisting of repeated purchases which are prompted by some strong internal disposition of the individual and not some situational exigency (the latter reflects "spurious loyalty," Day 1969). Based on this contention, Day (1969) and Lutz and Winn (1975) proposed loyalty indexes based on a composite of attitudinal and behavioral measures. Jacoby and Kyner (1973) proposed a set of six

necessary and collectively sufficient conditions which define brand loyalty. They suggest that brand loyalty is the (1) biased (i.e., non-random), (2) behavioral response (i.e., purchase), (3) expressed over time, (4) by some decision making unit, (5) with respect to one or more alternative brands, and (6) is a function of psychological (decision-making, evaluative) processes. This definition directs attention toward specific evaluative criteria and points to a more micro level of information processing within which to investigate the phenomenon.

Thus, in addition to considering the attitude towards the preferred brand of a loyal consumer, emphasis is focused on the underlying processes that contribute to the formation and preservation of the attitude, and those that might cause it to change. Jacoby and Chestnut (1978, Chapter V), for example, have considered the role of selectivity biases in acquiring information on the part of brand loyal consumers. Systematic biases at the level of information processing are believed to "insulate" the loyal consumer against competitive messages. A similar perspective is also apparent in the research relating brand loyalty to a reduced motivation to search for information about alternative brands (e.g., Newman and Werbel 1973). Despite such contributions, a truly multifaceted conceptualization of brand loyalty, possibly incorporating behavioral, cognitive and motivational components, has yet to emerge. The following section of the chapter develops such a framework. Finally, strategic implications of the framework are discussed.

Brand Loyalty: A Conceptual Framework

The literature review presented above highlights several distinct and important aspects of brand loyalty: (1) repeat purchases of a particular brand(s) over time; (2) a relative attitude toward the brand; (3) a predisposition to purchase the brand; (4) a reduced motivation to acquire information relevant to a choice involving the target or competing brand(s); and (5) a resistance to influence attempts from competing sources of information through biased information processing. In Figure 2-1, these five aspects are represented as large circles in a framework of brand loyalty. The term brand loyalty does not appear in the model, because brand loyalty is considered to be comprised of all five interrelated elements designated by these large circles. Direct relationships between the elements are represented by arrows. Many indirect and higher order relationships may exist but are not reflected in Figure 2-1 for the sake of clarity. From this perspective, equating any one of these as the loyalty construct itself and classifying the remaining as either antecedents or consequences would amount to an unnecessary simplification and, additionally, may lead to intractable research problems in establishing any pattern of temporal evolution. Indeed, the dynamic mutual relationships among the elements are believed to lend stability to the phenomenon. The proposed framework views brand loyalty as a syndrome of these five interrelated components.

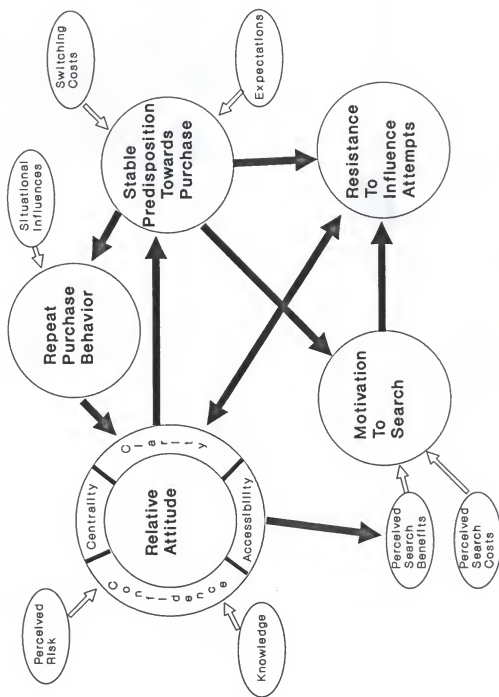


Figure 2-1
Customer Loyalty Framework

The ovals represent some key variables affecting aspects of the brand loyalty syndrome. In the following sections of this chapter, each of the elements in the syndrome is discussed and propositions are developed describing the relationship of the elements with the other elements in the syndrome and with antecedent variables. These propositions are supported by reviewing research in a number of theoretical domains.

Relative Attitude

Many authors have recognized the pertinence of attitude in brand loyalty. But few have explicitly recognized that one can have a favorable attitude towards a brand but not be "loyal" to it because attitudes towards other brands are equally or more favorable. Relative attitude is an internal feeling of affect for a particular brand (or service) over competing brands. This construct plays a central role in the conceptualization of the brand loyalty syndrome. Figure 2-1, indicates that relative attitude results in a stable predisposition to continue purchasing a brand which in turn is manifested in repeat purchase behavior. Thus,

- P1 The level or magnitude of relative attitude toward a brand positively affects predisposition to continue purchasing that brand.

While the theoretical relationship between attitudes and behaviors (such as repetitive purchase of a brand) is widely accepted, the strength of the relationship is affected by a number of factors. Understanding when attitudes predict behavior is crucial in developing a theory of brand loyalty. Some factors which have been identified as affecting the strength of the attitude-behavior relationship are (1) consistency among

the cognitive, affective, and conative components (Jacoby 1971a), (2) quality of the attitude (Fazio and Zanna 1981), (3) characteristics of the situation (Ehrlich 1969, Wicker 1969), and (4) personality variables (McArthur, Kiesler and Cook 1972).¹

Consistency among attitude components

Some research suggests that inconsistent results in research dealing with attitude-behavior relationships may be due to a failure to consider three components of attitude (affect, cognition, and conation) and to employ these as simultaneous and/or independent predictors of behavior (Greenwald 1968; Bagozzi and Burnkrant 1979; Cohen 1979). From this multicomponent perspective, the relative impact of the various components of attitude on behavior is a function of the target under consideration. For example, the affective attitude component may have a strong effect in the purchase of low involvement products while the cognitive component has a stronger effect in the purchase of products requiring a more complex decision process prior to purchase. Further, the three attitude components may have distinct antecedents. Thus, marketing strategies aimed at influencing brand loyalty need to consider the specific attitude component which has the greatest effect on the purchase situation under consideration.

While Jacoby (1971) emphasized the importance of consistency among the attitudinal components on repeat purchase behavior, empirical research on brand loyalty has not incorporated measures of the three components (i.e., Jacoby and Olson 1970). Sheth and Park (1974), on the other hand, contend that such a congruence of the three components is unnecessary. In fact, they suggest that specific components or sets of components

affect brand loyalty toward specific classes of products and for different types of consumers. They hypothesize seven different types of brand loyalty based upon all possible combinations of the attitude components and propose a set of consumer and product related determinants for the latter.

It may be useful to consider all three aspects, not as distinct elements of the brand loyalty framework, but in terms of what sorts of antecedents will be most effective in influencing the resulting liking or disliking of the brand. While for certain product categories and/or consumers, affective approaches (e.g., fear appeals, etc.) may be effective, still for others, a cognitive (e.g., strong message arguments) route may be more appropriate for attitude formation or change.

Quality of relative attitude

A number of qualities in addition to the attitude level have been recently associated with an increased consistency between attitude and behavior (Fazio 1986; Fazio, Sanbonmatsu, Powell and Kardes 1986; Fazio and Zanna 1981). Four of these qualities are confidence/certainty, accessibility, clarity, and centrality.

Confidence/certainty. Confidence/certainty refers to the level of certainty associated with an attitude toward a brand and the subsequent conviction with which the attitude is held. One may conceptualize attitudes as probability distributions of levels. Based on this conceptualization, the mean of the distribution represents the level of the attitude, while the variance represents the confidence/certainty quality of the attitude.

Confidence has been related to attitude-behavior consistency at the attribute level by multiplicative expectancy value models that include a confidence component (see, for example, Howard and Sheth 1969; Smith and Swinyard 1983). Also, global level confidence measures pertaining to attitudinal responses have been utilized by Warland and Sample (1973) and Brim (1955).

Accessibility. Accessibility is the ease with which an attitude can be retrieved from memory. Attitudes may be conceived of as an association between a given object and an evaluation of that object. From this perspective, the strength of the association influences the accessibility of the attitude.

Accessibility may be viewed in terms of a continuum, from an evaluation formed previously which cannot be retrieved to a well-learned attitude that is so highly accessible that it will be activated automatically upon the individual's encountering the attitude object (Fazio, Sanbonmatsu, Powell, and Kardes 1986). An automatically activated attitude is more likely to guide the individual's behavior than one which must be deliberately retrieved. Without activation of the attitude, behavior towards the object proceeds without the object having been considered in evaluative terms or on the basis of judgments of whatever features of the object happen to be salient in the immediate situation.

Clarity. In addition to relative level, certainty, and accessibility, attitudes may differ in terms of how clearly they are defined or focused. An attitude is well-defined (clear) when an individual finds alternative attitudes toward the target objectionable and is undefined when many alternative positions are acceptable. Attitude

clarity has been operationalized in terms of the width of an individual's latitude of rejection (Sherif and Hovland 1961). Based on this operationalization, Sherif, Kelley, Rodgers, Sarup, and Tittler (1973) suggest that a well-defined attitude may influence later behavior to a greater extent than an unfocused attitude. The attitudinal measures utilized by Jacoby and his colleagues are related most closely to this quality of an attitude.

Centrality. The degree to which an attitude toward a brand is related to the value system of an individual indicates the centrality of the attitude. As the relationship between the attitude and an individual's self-image increases, the consistency of the attitude-behavior relationship increases. The role of centrality has been supported by research indicating that store loyalty is related to the congruity between self-image and store image (Stern, Bush, and Hair 1977; Bellanger, Steinberg and Stanton 1976; and Sirgi and Sanli 1985).

The preceding discussion indicates that

- P2 The relationship between relative attitude toward a brand and predisposition to purchase the brand is positively affected by the confidence/certainty, accessibility, clarity, and centrality of the attitude.

Relative attitude and motivation to search

A number of studies provide evidence that as experience, learning, satisfaction, and repeat purchase increase, search for information about alternative brands decreases. Demsetz (1962), for example, used a regression approach on aggregate panel data. He found that as the loyalty (repeat purchase behavior) of orange juice concentrate buyers increased, search for information about alternative brands decreased. Katona and

Mueller (1955) and Newman and Staelin (1971; 1972) found that increased positive experiences with a brand resulted in less search. More recently, using an experimental procedure, Moore and Lehman (1980) found that subjects who selected the same brand of bread repeatedly, searched for less information than subjects who switched among alternative brands. Furse, Punj and Stewart (1984), utilizing cluster analysis techniques on survey data of buyers of new cars, found that "low search" consumers had the most purchase experience and were more satisfied with previous purchases than "high search" consumers, who were least satisfied with previous purchases and had the lowest confidence in their ability to choose.

These studies indicate that search for information about alternative products is related to the relative attitude towards the brand as well as to the certainty with which the attitude is held. Thus,

- P3 The level of relative attitude toward a brand and the certainty concerning the relative attitude is inversely related to the motivation to search for information about alternative brands.

The accessibility of an attitude may also have implications in terms of search activities. Highly accessible attitudes involving a strong association are very functional. They free individuals from the processing required for reflective thought about their evaluations of objects and result in a fairly automatic response to products. Without specifying specific cognitive mechanisms, similar "simplifying" or "summarizing" qualities have been ascribed to attitudes related to brand loyalty by several marketers (Jacoby and Chestnut 1978; Assael 1984). Thus,

- P4 The accessibility of an attitude toward a brand is inversely related to the motivation to search for information about alternative brands.

Relative attitude and resistance to influence

The degree to which the attitude is likely to be evoked automatically (highly accessible) is apt to affect the resistance of the attitude to counterinfluence. An attitude involving a strong association is apt to be activated upon the presentation of the attitude object and as a result be highly influential in forming an evaluation of the object. Consistent with this notion, Wood (1982) found that attitude change in response to a persuasive communication is moderated by the degree to which individuals can rapidly retrieve from memory beliefs about the attitude object and past behaviors. Thus, the stronger the object-evaluation association, the more resistant the attitude is to change and the greater its stability over time.

In addition, core (highly central) attitudes are more difficult to change than peripheral attitudes. These core attitudes are well integrated into a complex attitudinal structure. Thus, changing a core attitude in the structure often requires changing a number of other attitudes as well. In contrast, peripheral attitudes are related to an individual's attitude structure through a limited number of connections. Thus, changing a peripheral attitude may have little affect on other attitudes in the structure.

- P5 The accessibility and centrality of an attitude are directly related to the resistance of the attitude to influence attempts.

A detailed discussion of the mechanisms underlying these phenomenon is contained in the section on resistance to influence attempts.

Antecedents of attitude quality

Several confidence inducing factors or conditions have been suggested, most notably, the effect of direct versus indirect experience with the attitude object (Fazio and Zanna 1981). Direct experience is believed to produce an attitude that is more confidently held than an attitude formed through more indirect means. A number of reasons have been provided for the above effect. These explanations include

- a) Direct experience may make more information available to the individual than indirect experience.
- b) Individuals may have difficulty assessing their attitudes and feelings unless they have engaged in some freely performed behavior towards the attitude object (Bem 1972). Such behavior is generally perceived to be more reflective of an internal disposition than is other information.
- c) Individuals rarely derogate their own sensory experiences with an attitude object. Source derogation and counterarguing external messages is relatively common.

Smith and Swinyard (1983) investigated the effect of product trial versus product advertising on attitude strength and purchase behavior. They found that when attitudes are based on trial they predict purchase very well. However, when attitudes are based on advertising, attitude-behavior consistency is significantly reduced.

- P6 The degree to which an attitude is based on direct experience directly affects the confidence/certainty with which the attitude is held.

Also related to the confidence with which an attitude is held is the notion of perceived risk. Perceived risk is commonly defined as the uncertainty associated with a product's performance times the consequences of poor product performance (Bauer 1967). A number of different

dimensions of risk have been identified. These include, for example, performance risk, financial risk, psychological risk, social risk, etc. (Cunningham 1967; Tarpey and Peter 1975). Additionally, a number of risk reducing strategies have been identified. These include, for example, search for additional product information relevant to the dimension of risk which is appropriate (Lutz and Reilly 1973) and initial purchase of small quantities (Shoemaker and Shoaf 1975).

One would expect that attitudes toward a product perceived as risky would be held with less confidence than attitudes towards less risky products.

- P7 High levels of perceived risk associated with a product are inversely related to the confidence with which attitudes are held about the product.

Additionally, research indicates that uncertainty with respect to a product may be negatively related to the level of the attitude itself (e.g., Ahtola 1980; Osgood, Suci and Tannenbaum 1957). Therefore,

- P8 Perceived risk associated with a product is negatively related to the level of the relative attitude towards the product.

The accessibility of a brand attitude may be influenced either by facilitory effects at encoding or retrieval. Repetitions facilitate encoding when the evaluations, in addition to brand information, are easily discernible. Multiple exposures to effective advertising or multiple satisfactory experiences with consuming a brand increase the accessibility of the attitude toward the brand. Effects that facilitate retrieval include providing appropriate cues at the choice (purchase) situation.

- P9 The repetition of communications and experiences with a brand directly affects the accessibility of the attitude toward the brand.

Predisposition To Purchase

The predisposition to purchase a brand is a behavioral intention similar to the conative component of attitude. Figure 2-1 suggests that a high relative attitude toward a brand results in a strong predisposition to purchase the brand which in turn leads to repeat purchase behavior.

P10 The degree to which a consumer is predisposed to purchasing a brand is directly related to the level of repeat purchase behavior.

However, the predisposition to purchase a brand is also affected by behavioral constraints confronting the consumer. Thus, even if an alternative brand is evaluated more favorably than a brand presently being purchased, consumers may be reluctant to alter their purchase pattern due to high switching costs.

Switching costs

The development of switching cost is a common strategy advocated to increase customer loyalty in industrial markets (Porter 1980; Jackson 1985). Frequently, these switching costs represent idiosyncratic investments in a specific vendor's product such as the development of software that will only run on an IBM mainframe computer. However, human assets can also result in switching costs. An example is the training required to use a specific vendor's equipment, if this is not directly transferable to other vendor's equipment that performs the same function. A firm which is confronting the high cost of reprogramming software for a new mainframe computer or training employees to operate new equipment may be reluctant to switch vendors even if alternatives provide superior performance.

The concept of switching costs, however, may also be appropriate in a number of consumer choice settings. For example, switching costs are apparent in situations where consumers need to make elemental purchases integral to an overall system (e.g., Atra razor blades for an Atra razor or MS-DOS based software for an IBM-PC). Additionally, switching costs are operative in situations where relatively large start up costs are a required part of a series of purchases (e.g., membership initiation dues for a health or video rental club). A third situation where switching costs may play a role is when continued purchases are rewarded with some sort of escalating accrual of resources (e.g., stores which give green stamps with purchases or airlines that award frequent flyer points). Finally, switching costs are involved when additional consumer learning is associated with switching to a different product.

In addition to objective monetary costs associated with switching from one product to another, switching costs may also be psychological in nature. For example, if consumers commonly shop in the same grocery store from week to week, they will probably become quite comfortable shopping at the store as they learn its layout. Consequently, it becomes fairly easy to find the items they wish to purchase. If consumers were to try new stores which advertised cheaper prices, they might have trouble finding familiar products in the new store. This experience may turn out to be psychologically frustrating as well as leading to greater objective costs such as greater time necessary for the completion of shopping. Of course, psychological switching costs may operate at an even deeper level depending on the centrality or importance of the attitude to the

individual's value system--a notion that is bound to enhance the attitude's effect on behavior.

Based on the preceding discussion:

- P11 The perceived level of economic and psychological costs associated with purchasing an alternative brand is directly related to the predisposition to continue purchasing the brand.

Future expectations

Besides behavioral constraints such as switching costs, consumers' expectations about the future should also impact on predisposition to continue purchasing. These expectations reflect the current and expected fit between the marketplace offerings and the consumer's needs. Thus, expectations about the market place itself and the consumer's expectations about his own needs are relevant.

For example, consumers' expectations about future changes in the availability of brands in a certain product class may act to either postpone a repurchase of the current product (in the case where a better alternative is anticipated) or increase the predisposition to repurchase a current product (such behavior was recently exhibited by a large number of loyal "old Coke" drinkers when faced with its removal from the market).

Alternatively, expectations may reflect beliefs about the preferences themselves. For example, a consumer may expect his decision criteria to change, perhaps as his needs change with continued usage and increased knowledge about a product class.

- P12 Stable predisposition to repurchase a brand may be affected by consumers' expectations about future changes in his/her decision criteria and/or the marketing environment offerings.

Predisposition to continue purchasing and motivation to search

Favorable attitudinal status and/or high switching costs reduces the perceived benefits of information search by the consumer. This produces a high predisposition to continue purchasing a brand, and thus reduces the motivation of the consumer to search for additional information. For example, a consumer who made a commitment to a health club by paying a membership fee will not actively search for information about alternative health clubs because he will have to incur an additional membership fee to join any of the alternative clubs.

- P13 A consumer's predisposition to continue purchasing a brand is inversely related to the motivation to search for information about alternative brands.

Predisposition to continue purchasing and resistance to influence attempts

A high predisposition to repurchase a brand may result in selective perception and biased information processing. These in turn reduce the effectiveness of influence attempts.

- P14 The predisposition to continue purchasing a brand directly affects resistance to influence attempts.

Motivation To Search For Information on Alternative Brands

The motivation to search for information may be viewed as a function of the consumer's perceived benefits and costs of such activity. Thus, the benefits of search are probably reduced when consumers have a high relative attitude toward a brand as well as when they are favorably predisposed toward continuing to purchase the brand. Evidence for this was presented in the relative attitude and motivation to search for information section of the chapter.

Perceived costs of search may be due to factors such as lost time or monetary resources and physical and/or psychological inconveniences due to delayed gratification (Engel and Blackwell 1982; Bender 1964; Ratchford 1980). However, even though it may be useful and parsimonious to think about search motivation in terms of costs and benefits, the underlying processing dynamics that determine its intensity, direction and culmination are not yet well understood.

- P15 The motivation to search for information about alternative brands is a function of the perceived costs and benefits of search. The benefits of search are in part a function of the level and quality of the relative attitude toward the brand.

Motivation to search and resistance to influence attempts

It may be speculated that low motivation to search may lead to lower levels of attention to information in the environment. Thus, additional information processing about a brand should be based to a greater degree on internal information and currently held attitudes and to a lesser degree on external information. A significant stream of research on self persuasion suggests that thought about an attitude object will result in increased polarization of the attitude. Sadler and Tesser (1973) and Tesser and Conlee (1975), for example, have provided evidence that mere thought about a person resulted in the generation of more schema consistent arguments and more extreme attitudes.

While one might argue about whether the effect of motivation to search for information on resistance to influence attempts is a first order effect as opposed to a second order effect moderated by the attitudinal component, the self-persuasion literature suggests that resistance to influence attempts should increase with lower levels of

search. Thus,

P16 The motivation to search for information about alternative brands is inversely related to resistance to influence attempts.

Resistance To Influence Attempts

There is now evidence in different research domains that individuals holding strong commitments to specific objects/events/issues demonstrate an enhanced resistance to persuasion attempts, and that a number of mechanisms could underlie such a state. Fazio (1986) claims that attitudes influence behavior as a "result of the impact that they have upon perceptions of the attitude object in the immediate situation and upon definitions of the event." Working with current social attitudes, Lord, Ross and Lepper (1979) demonstrated that people who held strong opinions on complex issues are likely to accept "confirming" evidence at face value while subjecting "disconfirming" evidence to critical evaluation, and as a result to draw undue support for their initial attitudes. Implied is the notion of selective processing, whereby the drive toward consistency and equilibrium may result in vigilance and defense at different stages of information processing.

Selective perception ensures that consumers will receive information most relevant to their needs. Through perceptual vigilance (Assael 1984) information deemed unnecessary is filtered out. Selectivity could occur at exposure if consumers choose to listen or read communications only pertaining to their favorite brands. Engel (1963) found that new car purchasers had greater recall and interest in advertising for their own cars. Similarly, Ehrlich (1957) found that recent car buyers preferred to select advertising for the cars purchased. Selective attention results

in greater awareness of supportive information and avoidance of contradictory information. Brehm (1956) asked respondents to rate several products and then choose one as a gift. Before leaving, they were given a research report citing the good and bad characteristics of each product. Respondents focused attention on the positive characteristics of the selected product and the negative characteristics of the rejected product. Selective comprehension involves interpreting discrepant information consistent with prior beliefs and attitudes. Kassarijain and Cohen (1965) reported that 80 percent of nonsmokers believed the link between smoking and lung cancer was proven; yet only 52 percent of heavy smokers accepted this link. It is also likely that selectivity occurs at retention of information as consumers sort out information that is meaningful and conforms to prior beliefs and attitudes.

Perceptual vigilance is thus a function of consumer's needs. Assael (1984) has also claimed that the degree of product involvement is an important determinant of the extent and nature of such vigilance. An inverted U shaped function is posited whereby under conditions of high involvement, information unrelated to needs will be screened out while under conditions of low involvement, routine and expected information will be screened out.

Perceptual defense

A second function of selective perception--perceptual defense--reflects a consumer's desire to avoid and/or misinterpret conflicting and contradictory messages. It is also believed that the stronger the consumer's attitude about a brand, the greater the likelihood that consistent messages will be accepted and distorted in the direction of

such an attitude, while messages that do not conform will be rejected and distorted to contrast with the consumer's opinion.

It has also been claimed that advertisements that produce fear or anxiety in the consumer increase the likelihood of perceptual defense and may produce specific strategies for distortion (Stuteville 1972).

A consumer's resistance to influence attempts may also be construed in terms of the cognitive response paradigm. The strength of a prior attitude may be conceptualized as influencing the extent and nature of responses generated toward a communication for a brand and alternative brands. For example, it may be hypothesized that a consumer with high brand attitude for a brand purchased repeatedly will engage in more counterarguments and source derogations (and fewer support arguments) when exposed to an ad for alternative brands.

- P17 Resistance to influence attempts due to selective information processing or biased responses to communication messages results in maintaining a favorable relative attitude toward a brand purchased repeatedly.
- P18 Both extremely high and low levels of consumer involvement will be accompanied by increased perceptual screening of information unrelated to needs.

Repeat Purchase of Brand

Though repeat purchase is usually viewed as the end result of favorable psychological states, specific processing operations as well as supportive behavioral activities (e.g., search), the act of continued purchase and hence repeated consumption may have important influences on other constructs of the framework. As discussed previously, direct experience and interaction with a brand may influence certain qualities of the attitude for the brand, which in turn may affect relative attitude

or its diagnosticity. It must, however, be remembered that the above mentioned salutary effects will occur only if there already exists a favorable attitude toward the brand. In the event a brand is bought without an accompanying attitude or even when such attitudes are unfavorable (as when budgetary constraints lead an individual to make a "poor" purchase), repeated buying cannot be expected to have the described effects. A consumer may discover through repeated usage that a brand has favorable aspects/benefits other than those considered previously. Arguments may also be made relating increased familiarity with the brand to increased affective (emotive) intensity. Factors external to the syndrome that may have impact on repeat purchase of a brand include situational conditions, such as availability, timing, etc.

- P19 When repeat purchase of a brand is accompanied by a favorable attitude towards the brand, then such continued purchases lead to strengthening of the relative attitude towards the brand and/or increasing the confidence, accessibility, centrality or clarity with which the attitude is held.

Summary: Strategic Implications For Managing Brand Loyalty

The notion of a "single best index" of brand loyalty has been rejected in favor of a more integrated approach. The multifaceted view, though cumbersome in terms of measurement procedures and lacking in parsimony, is nevertheless superior in capturing the diversity of the phenomenon. The conceptual framework presented in this chapter provides several advantages in that (a) not only are internal predispositions or attitudes considered important in the structure, but qualities of such attitudes are explicitly incorporated. Delineating conditions when attitudes strongly relate to repeat purchase should improve the predictive validity of a model of brand loyalty; (b) in recognizing the dynamic

aspects of loyalty, such as biased information processing and search, one is able to appreciate why brand loyalty persists and the nature of the strategic problem faced by a competing marketer. In fact, such underlying micro-level processes lend stability to the syndrome, helping to insulate attitudes from persuasion attempts and ensuring repeat purchase.

Indeed, the syndrome framework not only allows one to determine an individual's overall intensity of loyalty towards a certain brand but also provides an analysis of the basis of such loyalty. It also allows comparisons between several different competing brands and provides diagnostics on which future strategic action may be based. For example, consider a consumer who consistently purchases the same brand of laundry detergent merely because it is consistently promoted with cents off coupons. In contrast, a consumer who buys the same brand of laundry detergent each week because he (1) believes that it possesses the optimum formulation of cleaners for his particular type of laundry; (2) believes that cleansing is an extremely important attribute of laundry detergents; (3) really likes the detergent and feels happy with it; (4) is very confident in his attitude; and (5) pays little attention to the promotional activity of other brands, possesses a much less vulnerable type of brand loyalty. Thus, by actively considering the proposed framework, the levels of the different constructs and their relationships, a marketer can identify regions of vulnerability in a given target segment. Such measures may also be successfully incorporated into pretest procedures for promotional campaigns.

In order to effectively influence loyalty through strategic marketing actions, it is important at this stage to develop programmatic

research aimed at exploring the relationships embodied in the suggested propositions. Appropriate research paradigms may have to be designed to capture the dynamic processing aspects of brand loyalty as well as more traditional purchase frequencies and attitude strengths. It is hoped that future research will lead to a further enrichment of the loyalty phenomenon by pursuing such a multicomponent and dynamic view. This dissertation builds such a paradigm and utilizes it to explore in detail the impact of switching costs on customer loyalty.

The following chapter, discusses switching costs in greater detail and presents the hypotheses to be tested in this dissertation.

Note

1. Measurement issues also affect the empirical relationship between attitudes and behaviors (Cohen, Fishbein and Ahtola 1972; Ajzen and Fishbein 1977; Ryan and Bonfield 1975); however, these measurement issues are not relevant to the theoretical nature of the relationship.

CHAPTER THREE SWITCHING COSTS AND BRAND LOYALTY

Introduction

This chapter introduces the notion of switching costs and the related concept of sunk costs. These costs are discussed as a basis for loyalty and then a formal statement of the research hypotheses is presented.

Switching Costs and Brand Loyalty

The concept of switching costs, although receiving essentially no attention in the consumer literature, appears to be a major factor in the development of some types of brand loyalty. In a sense, a cost associated with switching from one brand to another acts as a constraint on behavior. Consumers may indeed evaluate competing products more favorably than the product they currently purchase but are motivated to continue purchasing the same brand due to the costs associated with changing brands. These costs may be objective or they may be psychological in nature. For example, consider the case of a consumer (let's call him Alan) who five years ago purchased a TRS-80 computer. At the time, the TRS-80 was the only practical home computer on the market. Over the five year period, Alan has remained a loyal user of his TRS-80 and a loyal purchaser of TRS-80 related products. In fact, he has invested quite a bit of money in software and peripherals intended to work with the TRS-80. Now; however, the home computer market has matured and a number of computers

are available which are far superior to the TRS-80. Alan likes a number of these computers more than the TRS-80; however, the substantial amount of money invested in software and peripherals (which could not be used with other computers) prohibits him from purchasing one. In fact, he is more likely to purchase additional TRS-80 compatible hardware and software for his machine which is completely dominated by competing computers than to purchase another computer.

This rather extreme example illustrates how repeat purchase behavior can arise even though a consumer may like a competing product more than the one he currently uses. This example parallels the typical switching cost situation in the industrial sector. A new, more efficient technology competes with a less desirable but heavily invested technology. Less extreme examples are probably more common in a consumer setting. Consider for example another consumer (let's call him Bart). Five years ago Bart purchased an Atra razor. Since that time he has purchased only Atra razor blades. The thought never occurs to him to try a different type of razor or blades. He pays little or no attention to advertising for competing razor blades. He simply buys Atra razor blades. This occurs even though the cost of replacing the Atra razor is relatively minor and illustrates how a firm can reap the benefits of customer loyalty for a long time to come by inducing a consumer to make even a very small capital investment. The example highlights the idea that switching costs may have psychological antecedents in addition to the simple objective monetary costs of switching. This relates to the idea that sunk costs may be considered in decisions about future investments. This concept has

received some attention in psychology and organizational behavior literature and will now be discussed.

The Concept of Sunk Costs

There is a small but significant literature which suggests that people commonly consider sunk cost in formulating decisions about future courses of action. This occurs despite the rather obvious normative prescription that these costs should be ignored. For example, Arkes and Blumer (1985) manipulated the cost for a season subscription of theatre tickets in a field experiment. The cost paid for the season ticket was randomly assigned after the patrons announced their intention to buy a season ticket. Thus, there should have been no systematic relationship between the prices paid by the customers and their prior attitude about attending the plays. The results showed that customers who had initially paid more for the tickets attended more plays during the first half of the season than customers who had paid less. The authors attributed this result to the fact that those paying more had greater sunk costs and thus would be unhappy if they subsequently wasted that money by not attending all of the plays.

One could also explain the results of this experiment in terms of cognitive dissonance. While post purchase dissonance is often studied by examining the spreading of attitudes between chosen and non chosen alternatives after a decision is made (e.g., Brehm 1956), the resultant spreading has been explained both in terms of increasing the attractiveness of the chosen alternative and decreasing the attractiveness of the rejected alternative (Petty and Cacioppo 1981). However, the theory suggests that dissonance will be aroused in decision making when

the decision is (a) important to the person, (b) means giving up relatively attractive features of the unchosen alternative or accepting unattractive features of the chosen alternative, and (c) concerns alternatives that are dissimilar in their attributes but similar in their desirability (Petty and Cacioppo 1981). Thus, on the surface, it appears that this experiment would not fall into the domain of cognitive dissonance theory since only one alternative was considered. However, one could conceive of this problem as one in which the decision is to buy or not to buy a season ticket where the no buy option is really a decision to do something else other than attend plays on the nights which they occur. Consequently, the attitude toward attending the plays may have increased more for customers who paid more for the tickets than for those who paid less. Thus, dissonance reduction does appear to be a plausible explanation for this finding. However, attitudes were not measured in this experiment, therefore, a dissonance reduction explanation cannot be simply accepted at face value.

A related literature dealing with escalating commitment finds a similar sunk cost effect. Escalating commitment refers to a special case of the more general sunk cost effect in which, contrary to learning theory predictions, failure produces increased commitment to a course of action. Staw (1976), for example, had business students participate in a role playing exercise in which they allotted investment dollars to one or more R&D projects. He found that those students who felt responsible for a financially unsuccessful decision subsequently invested more money into that option than if their prior decision was successful. Subjects committed the greatest amount of resources when they were personally

responsible for negative consequences resulting from a previous investment decision. Staw and Fox (1977) replicated this result and further found that subjects with high responsibility for negative consequences decreased their level of investment over time. Staw (1981), in his summary of the escalation of commitment literature, presented a model of the determinants of persistence in an escalation situation. He suggested that motivation to justify previous decisions (both internal and external), norms for consistency, as well as the economically rational perceived probabilities and values of future outcomes, lead to persistence in an escalation situation. However, he noted that perception of probabilities and values may be distorted by the motivation to justify previous decisions. The model underscores the implication that both internally and externally based motivations for consistency may lead to a strengthening of commitment. Further, once sunk costs have been expended, consumers may actually distort the value of competing alternatives to maintain consistency.

Tversky and Khaneman (1981) conceptualize the sunk cost effect in terms of perceptual factors relating to how the decision is framed. They refer to a concept of "psychological accounting." They argue that people often evaluate acts in terms of a minimal account. A minimal account includes only direct consequences of the act. For example, a minimal account associated with the decision to accept a gamble would reflect the money won or lost on the gamble and excludes other assets or the outcomes of previous gambles. They argue that minimal accounts are often adopted because this mode of framing a problem simplifies evaluation--reducing cognitive strain, reflects the intuition that consequences should be

causally linked to acts, and matches the properties of hedonic experience--which is more sensitive to desirable and undesirable changes than to steady states. However, in certain situations an outcome of an act will affect the balance in the account that was previously set up by a related act. In these cases, the current decision may not only reflect the minimal account but a more inclusive account. A sunk cost effect arises when a decision is made with reference to an account having a negative balance. As an example, consider a person who has lost \$150 one afternoon at a racetrack. He is considering a \$10 bet on a 15:1 long shot during the last race. The decision can be framed with respect to two different reference points. If the status quo is seen as the reference point then the two outcomes can be viewed as a gain of \$150 or a loss of \$10. Alternatively, if the present state is viewed as a loss of \$150 for the day then the bet may be viewed as a chance to return to the original reference point or a loss of an additional \$10. Tversky and Khaneman's prospect theory predicts that the latter frame would result in a more favorable evaluation of the bet than the former as positive gains from a neutral reference point are valued but corresponding losses from the neutral reference result in a disproportionately large loss of value. Thus, the chance to gain \$150 previously lost is more highly valued than would be the chance to win \$150 in and of itself.

Consider another example from Tversky and Khaneman's work. Two hypothetical scenarios were presented to subjects. In the first scenario, subjects were asked to imagine that they were going to purchase a \$10 ticket for a play. On the way in to the theatre; however, they lost the ticket. The second scenario also suggested that they were to purchase a

\$10 play ticket but on the way to the theatre they lost a \$10 bill. In both cases, subjects were asked to decide whether they would purchase the \$10 ticket. The percentage of subjects buying the ticket was much higher in the second scenario than in the first. Tversky and Khaneman attribute this to psychological accounting. Subjects in the first scenario entered the second purchase into the same account that was set up for the purchase of the original ticket. They viewed the cost of the play to be \$20. In the latter scenario, the \$10 loss was not specifically linked to the ticket purchase, thus its effects on the decision were slight. Both the play ticket and the horse track examples indicate that the way people perceive or frame a decision may have a big impact on the outcome of the decision.

Sunk Costs in Consumer Settings

Sunk costs can be readily identified in a number of consumer choice situations. Bart and his Atra razor illustrated the case of a monetary sunk cost. Additionally, in cases where consumers expend time and energy learning about a product, and that learning does not transfer to a competitor's product, sunk cost effects may be operative. For example, if a consumer consistently shops in a given grocery store, he has probably spent a good deal of time and effort learning to negotiate the aisles of the store quickly and efficiently. Going to a different store would require that the shopper invest additional effort learning about the new store (a switching cost), but it may also be that in addition to the switching cost, since the consumer feels that he has made some investment, going to another store in some way wastes that investment. Therefore, he remains a steady customer, even if an alternative store becomes available.

Another common example of sunk costs in consumer settings involves paying initiation fees to join a health, tennis, or video cassette rental clubs. Once paid, these costs presumably allow the customer to gain access to a level of utility higher than that possible without payment of the membership fee. Once the initiation fee has been paid it should not be considered in other decisions about future club memberships. The sunk cost literature summarized above; however, suggests that beyond purely rational monetary sunk costs, consumers are often influenced by the motivations not to appear inconsistent or wasteful. Thus, the dollars spent to purchase a membership in a club may yield a psychological cost associated with switching from the club.

Scenario of Interest

This dissertation examines the impact of sunk costs in the form of an initiation fee paid to join a video cassette rental club. In the experiment, a consumer originally pays an initiation fee to join a movie rental club that provides greater value than competitors who do not charge initiation fees. Once the fee has been paid, the structure of the market will change such that another video rental club now provides value equal to the original club for the same marginal cost, but with no initiation fee. Thus, objectively, the two stores should be equally attractive to the consumer. The experiment is intended to examine the strength and longevity of the effect of the initiation fee on future purchases as well as on the other elements of the brand loyalty syndrome discussed previously.

The literature in switching costs gives little indication as to the longevity of these effects. It seems quite reasonable; however, that the

psychological costs associated with switching to an alternative club would depend on the length of time and the amount of differential benefits the consumer received since paying the initiation fee. If immediately after paying the fee, the customer realizes that another video rental store is available which provides the same marginal utility but does not charge initiation fees, the consumer may feel that since he paid the fee, switching to the alternative store would be a waste of that original fee. While this behavior is irrational from an economic perspective, it may appear perfectly reasonable to the consumer. Following the same logic, if the consumer had benefited by paying the fee (e.g., obtaining a greater level of utility for an extended period of time than would have otherwise been possible) then he may feel that the fee had in some sense paid for itself and would feel less troubled by switching if an acceptable alternative became available. Thus, over a long period of time, the initiation fee may be "psychologically amortized" as the consumer feels that he has gotten his money's worth and hence does not feel quite so locked into his present choice.

In this scenario, there are two possible mechanisms by which the two stores can become equivalent in terms of marginal utility. The "number two store" could increase its marginal utility to the same level as the "number one store." Alternatively, the "number one store" could allow its marginal utility level to drop to that of the "number two store." This difference may impact on how the decision is framed, and thus, result in different effects on purchase behavior. For example, in the case where the second place store raises its level of utility to that of the first place store, the consumer may perceive the original store's utility level

as a continuation of the status quo. Consequently, he may not be particularly inclined to entertain the notion of switching. However, if the number one store drops its value so that it is now equal to that of the number two store, the consumer may perceive its new level to be a loss. In this case, the consumer may be more willing to consider switching to another store.

This framing effect may occur in situations where no initiation fee is charged as well. Any time a consumer becomes used to a particular level of utility and that level suddenly drops, he is likely to encode the change as a loss. This difference in purchase behavior as a result of the source of the change may; however, be even more pronounced if an initiation fee has been paid to shop at the first store. In this case, the notion of a "psychological contract" becomes relevant. The consumer who pays an initiation fee to shop at a particular store probably feels that he is entitled to a certain level of utility for the duration of the psychological contract. This duration, unless explicitly stated, will be determined subjectively by the consumer. If the consumer feels that a company has violated his psychological contract (for example, by dropping its level of utility prior to the time that the consumer has psychologically amortized the initiation fee) then his beliefs about the brand's ability to provide him with adequate levels of satisfaction in the future may be reduced. Thus, the consumer may be more likely to entertain the idea of switching to a new brand, even though (in fact, because) he has paid the initiation fee.

Hypotheses

- H1 Sunk monetary costs associated with a brand increase the consumer's predisposition to purchase that brand or patronize that store.
- H1A This sunk cost effect will be an inverse function of the cumulative benefits gained as a result of incurring that cost.
- H2 Sunk monetary costs associated with a brand or store decrease the consumer's motivation to search for information about an upcoming purchase concerning the brand or store.
- H2A This sunk cost effect will be an inverse function of the cumulative benefits gained as a result of incurring that cost.
- H3 Sunk monetary costs associated with a brand or store increase the likelihood that the consumer will repeatedly purchase the brand or patronize the store.
- H3A This sunk cost effect will be an inverse function of the cumulative benefits gained as a result of incurring that cost.
- H4 When a currently patronized store (or purchased brand) reduces its level of utility, the consumer is likely to view the situation as a loss and give greater consideration to the other stores (or brands) then in a situation when an alternative store (or brand) increases its level of utility by the same amount. This will manifest itself in an increased motivation to search, a decreased purchase intention for the incumbent, and decreased repeat purchase behavior of the incumbent. This effect will be larger in the case where the incumbent lowers its level of utility than in the case where an alternative raises its level of utility by a corresponding amount.
- H5 When an incumbent reduces its level of utility and the consumer perceives that a psychological contract has been broken, their tendency to consider alternative brands (or stores) will increase even more then when the incumbent lowers its level of utility by a corresponding amount but no psychological contract is perceived to be broken. This will manifest itself in an increased motivation to search, a decreased purchase intention for the incumbent and decreased repeat purchase of the incumbent compared the case where no psychological contract is perceived to be broken.

CHAPTER FOUR METHODOLOGY

Chapter Overview

The propositions developed in the previous chapter concerned how switching costs and sunk costs might affect the variables identified in the customer loyalty framework. It was argued that sunk costs have a direct impact on predisposition to continue purchasing an alternative and second order effects on the other four elements of the customer loyalty framework. More specifically, sunk costs were predicted to increase predisposition to continue purchasing the alternative, increase the likelihood of repeat purchase, and decrease the consumer's motivation to search for information about an upcoming purchase. Additionally, the notion of "psychological amortization" was introduced. It was suggested that the sunk cost effects stated above would be reduced as the cumulative benefits gained as a result of the sunk cost increase. That is, over time and as marginal benefits made possible by incurring the sunk cost are accumulated, consumers psychologically amortize these sunk costs. As these costs are amortized, their impact on future decisions are hypothesized to be reduced. Finally, sunk cost effects were suggested to be affected by factors associated with the manner in which the current decision problem is framed.

This chapter details the methodology employed to test these hypotheses. The experiment was designed to examine the hypotheses dealing

with sunk cost effects and moderators of these sunk cost effects (problem framing, perceived violation of an implicit contract, and psychological amortization). In the experiment, sunk costs were operationalized by charging an initiation fee for the privilege of shopping at a particular store which provided a higher level of marginal utility than the other stores in the marketplace.

The remainder of this chapter is divided into four main sections which: overview the experiment; describe the rationale for the experimental factors manipulated; describe the subjects utilized in the study; and detail the experimental paradigm employed.

Experimental Overview

The experiment was designed to test hypotheses H1-H5. Hypotheses H1-H3 suggested that sunk monetary costs associated with a particular brand or store result in a greater predisposition to continue purchasing that brand or patronizing that store, an increased actualized repeat purchase rate, and a decreased motivation to search for information about the upcoming purchase. Hypotheses H1A-H3A suggested that the sunk cost effects outlined above would be reduced as an increasing function of the cumulative benefits already obtained as a result of the sunk cost (i.e., sunk costs would be "psychologically amortized"). Hypothesis H4 suggested that sunk cost effects will be moderated by the way the current decision problem is framed. More specifically, it was suggested that when the value offered by the currently purchased alternative is viewed as a loss, more consideration will be given to competing brands (i.e., reducing the relative impact of the sunk cost). Additionally, the notion of a "psychological contract" was introduced. It was predicted in Hypothesis

H5 that when consumers perceive that a "psychological contract" has been broken, they will display an even greater tendency to entertain the idea of switching.

To test these hypotheses, a computer based experimental paradigm was developed and employed. In this experiment, some subjects were originally given the option of paying an initiation fee to join a video cassette rental club that provided greater value than its competitors which did not charge initiation fees. For other subjects, the fee was not required to shop at the best store. The subjects then made a series of purchases from one of three stores in the simulated marketplace. After a number of trials, the structure of the market was changed so that a competing video rental club provided value equal to that of the previously dominating club for the same marginal cost, but with no initiation fee. Thus, objectively, the two stores should have been equally attractive to the consumer. However, it was hypothesized that subjects who paid the initiation fee to join the original club would be less likely to entertain the idea of switching to the alternative club than subjects who did not pay the fee.

To facilitate the study of the longitudinal interrelationships among the variables identified in the customer loyalty framework, the paradigm was designed to collect data on three of the five key framework variables (repeat purchase, motivation to search for information and relative attitude).

The following section describes the rationale for the experimental factors manipulated in this study. The next section describes the subjects utilized in the study. The final section describes the paradigm and manipulations in detail.

Experimental Factors

Three factors were each varied over two levels in this experiment producing a 2x2x2 ANOVA design. First, the level of the initiation fee was manipulated to be either high or 0. Second, the period in which the change in market structure occurred was manipulated to be early or late. Finally, the source of the change was manipulated to be either a drop in attractiveness of the original store (A down) or an increase in attractiveness of a competing store (B up). A brief explanation of the rationale for these manipulations follows.

The level of initiation fee factor was manipulated in order to gauge the effects of financial or psychological "investments" on subsequent purchases when the alternatives later become equally attractive. While the exact nature of the process underlying these effects has not been identified, it was predicted that the effect of this sunk cost should produce a tendency to continue with the current store as the psychological effects of having paid the initiation fee continue to influence future decisions. It was hypothesized; however, that this effect would decrease over time as the cost would be "psychologically amortized" with continued usage and increased cumulative benefits realized as a result of that usage. Therefore, the period in which the market structure changed was manipulated to occur either relatively soon after making the investment (period 3) or relatively late in the experiment (period 7). It was hypothesized that more switching would occur in the periods following a change in period 7 than following a change in period 3 as the benefits accrued as a result of the payment of the initiation fee are greater in the former situation than the latter.

Finally, the nature of the change in the market structure was hypothesized to affect future purchases. It was hypothesized that in the case where the current store reduces its value--equating its level with that of the next best competitor, the consumer would be likely to perceive the value offered as a loss. They would then be more willing to entertain the idea of switching to a competitor than in the case where a competing store raises its level of benefits to match that of the currently purchased alternative. It was further hypothesized that this difference may be even greater when consumers feel that an implicit contract has been broken (i.e., that the consumer's current store dropped its level prior to the time that the initiation fee was psychologically amortized). Therefore, the source of the change in the market structure was manipulated to be either the consumer's current store (dropping its level of benefits) or a competitive store (raising its level of benefit).

A detailed description of the manipulations and paradigm follows after a brief discussion of the subjects utilized.

Subjects

One hundred sixty-three subjects were recruited from the university community in Gainesville, Florida during the months of December 1986 and January 1987. Four subjects in various sunk cost conditions were dropped from the study since they did not elect to pay the initiation fee. Thus, 159 subjects were included in the final analyses. Most of the subjects were between 17 and 24 years of age. Fifty-one percent of the subjects were male and forty-nine percent were female. All subjects received extra credit in their introductory marketing class for participating in the experiment.

To motivate subjects to perform the task meaningfully and to add an element of "real world risk," participants were told that the 10 subjects who earned the most points in the shopping simulation would receive a \$25 cash prize. In reality, however, since the number of points possible to acquire depended on the condition of the experiment to which an individual subject was assigned, the cash prizes were awarded to ten randomly chosen subjects approximately one month after the experiment ended.

Experimental Paradigm and Manipulations

This study was conducted at the behavioral laboratory provided by the Center for Consumer Research at the University of Florida. The experiment was conducted on 4 IBM PC-XT computers equipped with enhanced color graphics monitors (EGA). Software for the experiment was originally developed and tested using BASICA for the IBM PC-XT and was later compiled using Microsoft QuickBasic 3.0. The software source code for this experiment is provided in Appendix 1.

All experimental instructions were presented by the computer, reducing the experimenter's role during the experiment to answering questions and handling minor administrative details. This minimized the likelihood of experimenter-induced biases and insured that all subjects received the same task instructions. All data were collected by the computer, eliminating the chance of transcription or key punching errors.

A description of the protocol of the experiment follows. Figure 4-1 presents a schematic of the experimental procedures. As each subject sat down at the computer screen he was randomly assigned to one of the eight experimental conditions. The experiment then began. First, the nature of the shopping game was explained to the subjects. The scenario was

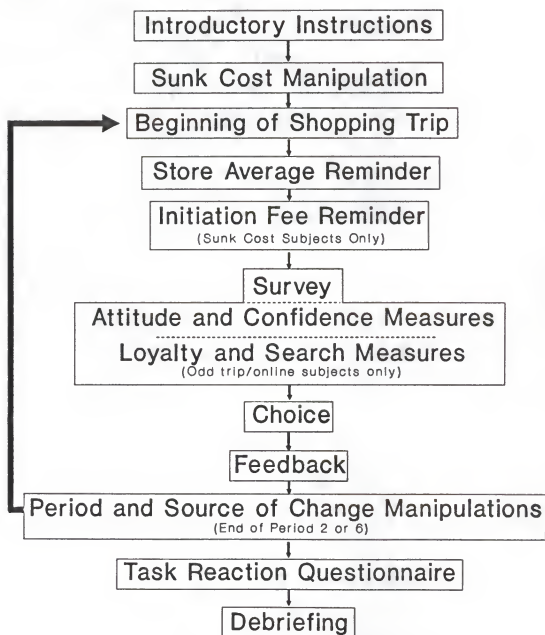


Figure 4-1
Experimental Overview

described and subjects were told that their task was to maximize the number of utility points earned over the course of the experiment. Further, they were told that their level of compensation for participating in the experiment was determined by the total number of utility points earned during the course of the experiment. They were given 300 points with which to start the game. During this stage, they were also given introductory information about the three attributes used in the study (number of video tapes available, number of top twenty tapes available, and the amount of time required to shop in the store). During the experiment, the two selection size attributes were used as a surrogate for the attractiveness of the movies available for rental (an important attribute for video store selection). This eliminated the complication that subjects may have differed in their tastes for movies. Regardless of any consumer's particular preferences in movie types, the probability of finding one he likes is improved with the size of the selection of movies available at the store. Subjects were then told about the nature of the task.

The task consisted of making 10 shopping trips. On each trip, subjects went through 3 stages: Survey Stage; Choice Stage; and Feedback Stage. These stages will be described in detail shortly. A protocol of the introductory task instructions is contained in Appendix 2.

After receiving the preliminary instructions, subjects were introduced to the three fictitious video stores. Verbal depictions of the stores colorfully described them on the three key attributes and the average number of utility points each provided. A protocol of the store descriptions can be found in Appendix 3.

The store averages presented to the subjects prior to their first choice were assigned as follows: 40 for Store A; 20 for store B; and 15 for Store C. These values were pretested to insure that the vast majority of subjects originally chose Store A. This simplified interpretation of the results and provided for more efficient use of the data.

Sunk Cost Manipulation

Subjects in the sunk cost condition were then informed that Store A had a one time membership fee of 100 utility points. Paying this fee permitted subjects to shop at Store A for the remainder of the experiment. The subjects were given the option of paying this fee or being restricted to the vastly inferior stores (B and C) for the remainder of the simulation. Previous research suggests that having subjects elect to pay the initiation fee would provide a stronger manipulation than compelling them to pay the fee. Since the manipulation in part depends on the subjects making some psychological commitment to the store, compelling them to pay fee would tend to reduce this feeling of commitment (see Staw 1976; Staw 1981; and Staw and Fox 1977). Choosing the level of the fee, however, turned out to be a major consideration. On the one hand, the fee needed to be small enough that all or almost all of the subjects in the sunk cost condition would elect to pay it. This would avoid problems associated with differential experimental mortality. On the other hand, the fee needed to be large enough so that it was viewed by the subject as meaningful and significant. Extensive pretesting revealed a great deal of reluctance on the part of the subjects to pay the fee in this context. Thus, the fee was kept small and a fairly heavy-handed sales approach was taken to induce subjects to accept the fee.¹

Subjects were told that, irrespective of what occurs in other markets, stores in this market charging initiation fees are genuinely better than stores not charging fees. Store A, on average, provided 20 points per trip more than its nearest competitor (Store B) and 25 points per trip more than Store C. Thus, over the course of the 10 trip simulation, subjects could expect to receive about 200 additional points by paying the fee and consistently choosing Store A. Since the fee was 100 points, an expected net gain of 100 points could be realized.

Further, subjects were told that if they did not pay the fee at that time, they would not be allowed to pay it later, nor would they be permitted to choose Store A on any of the trips. If the subject agreed to pay the fee, his account was reduced from the 300 points given to him at the start of the experiment to 200 utility points.² In the no sunk cost condition, no mention was made to subjects of any initiation fees, and they were free to choose from any of the three stores. This constituted the sunk cost manipulation. A protocol of the initiation fee instructions is contained in Appendix 4.

The Shopping Trips

Next, subjects proceeded on their 10 shopping trips. At the beginning of each trip, subjects were reminded about the average scores of the stores (see Appendix 5). If subjects had paid the initiation fee, then they were also reminded of it at the beginning of each trip so that the fee remained salient in their minds (see Appendix 6). Each trip involved three stages: the survey stage; the choice stage; and the feedback stage.

Survey stage. Following the store average and initiation fee reminders, subjects proceeded to the survey stage. Here measures of attitudes and confidence in attitudes about each store were taken. The measures used are presented in Appendix 7. To help gauge attitude accessibility, reaction time measures were desired. Consequently, subjects were told to respond as quickly as possible without sacrificing accuracy. Reaction time measures were collected for each of the responses by measuring the time elapsed from the onset of the stimulus (i.e., the attitudinal or confidence scale) and the subject's response at the keyboard.

In addition, it was desirable to question subjects about their purchase intentions and feelings of loyalty towards Store A and their motivation to search for information at key points in the study. Asking these questions at the end of the experiment might result in less accurate responses as subjects may be unable to recall what their exact feelings were at specific points of time in the simulation. On the other hand, the potential for demand artifacts was a major concern, especially with respect to subsequent choices as a result of these inquiries during the course of the simulation. Therefore, subjects were randomly assigned to either an ONLINE or RETROSPECTIVE condition. Half of the subjects in each of the 8 previously described experimental conditions received the battery of loyalty scale and motivation to search scale questions (see Appendix 8) on the odd shopping trips immediately after the attitude measures were taken. These subjects will be referred to as ONLINE subjects. The remaining subjects received the battery of questions after completing all of the choices as part of the task reaction questionnaire at the end of

the experiment. These subjects will be referred to as RETROSPECTIVE subjects.

Choice stage. Following the survey stage, subjects entered the choice stage of the experiment. Here, subjects were asked to make a choice of one of the three stores. They indicated their choices by depressing one of the keys labeled A, B or C on the keyboard (see Appendix 9). The subjects were then reminded of their choice and were given the option of either indicating that the choice was correct or that it was a mistake. When subjects indicated that they had made an error in indicating their choice, they were given the opportunity to try again (see Appendix 10). The time taken to make the choice was surreptitiously measured and recorded.

Feedback stage. Following the choice, subjects were presented with the number of utility points earned on the current trip as well as the number of utility points that would have been earned had they chosen either of the other two alternatives. This feedback about the alternatives was provided to reinforce the fact that there were differences among the outlets of a given store across trials. Additionally, it provided reinforcement to the subjects who chose to pay the fee, making salient the fact that they were indeed getting more utility by shopping at Store A than they would have earned had they not paid the fee and been forced to shop at either of the inferior stores (i.e., the initiation fee was paying for itself). Subjects were also informed of their cumulative scores. A sample feedback screen is presented in Appendix 11. This series of stages (survey, choice and feedback) was repeated on each of the ten shopping trips.

Period of Change and Source of Change Manipulations

The period of change and source of the change manipulations are easily understood by examining the stimuli. The average utility payoffs for each store are presented in Table 4-1. Regardless of condition, the simulation began with store A providing a mean utility of 40, store B providing mean a utility of 20 and store C providing a mean utility of 15. Then, depending on the experimental condition, a change in the market structure occurred (in either period 3 or 7) which equated the average utility of stores A and B. The change was manipulated to be either the improvement of store B from an average of 20 to an average of 40 utility points or the decreasing of store A's average utility from 40 to 20. Store C always provided an average of 15 utility points. See Appendix 12.

Following the completion of the ten shopping trips, a task reaction questionnaire was administered. A copy of the questionnaire is contained in Appendix 13. This questionnaire was designed to collect some key dependent measures, plus measures of subjects' perceptions of various aspects of the task, some manipulation check measures, and subject demographic information. Following the completion of the task reaction questionnaire, subjects were debriefed by the experimenter. The average time for completing the experiment was about forty-five minutes.

Additional Stimulus and Design Considerations

Two final stimulus and design considerations need to be mentioned. These concern the comparability of the stimuli between conditions and the subjects' attributions about the reasons for the change in the various stores' utility values. These details will be briefly discussed before moving to a discussion of the results in the next chapter.

Table 4-1
Mean Utility Points Earned By Store and Condition

Condition: Period of Change = 3 Source = A Down

Store										
A	40	40	20	20	20	20	20	20	20	20
B	20	20	20	20	20	20	20	20	20	20
C	15	15	15	15	15	15	15	15	15	15

Condition: Period of Change = 7 Source = A Down

Store										
A	40	40	40	40	40	40	20	20	20	20
B	20	20	20	20	20	20	20	20	20	20
C	15	15	15	15	15	15	15	15	15	15

Condition: Period of Change = 3 Source = B Up

Store										
A	40	40	40	40	40	40	40	40	40	40
B	20	20	40	40	40	40	40	40	40	40
C	15	15	15	15	15	15	15	15	15	15

Condition: Period of Change = 7 Source = B Up

Store										
A	40	40	40	40	40	40	40	40	40	40
B	20	20	20	20	20	20	40	40	40	40
C	15	15	15	15	15	15	15	15	15	15

Note: The sunk cost factor is not illustrated in this table. The four cells presented here are replicated twice, once with Store A requiring a 100 point initiation fee and once with no initiation fee required.

Comparable Stimuli. A key dependent measure in the analysis is the first choice after the stores are equated. This provides an examination of subjects first reactions to the change. However, these first reactions may differ from longer term choice patterns. For example, immediately after the two stores are equated, variety seeking may lead to a tendency to switch. Think about one's neighborhood, and how when a new restaurant opens up, one wants to try it immediately. However, after going there, if the new restaurant is not anything special, one returns to the same old restaurants frequented before. An analogous situation may exist in this experiment. Therefore, it is desirable that the experiment provide measures of longer term patterns of choice and switching. Thus, in addition to examining the first choice after the two stores are equated, the experiment was also designed to examine the four choices occurring after the time the two stores were equated. This, however, required some additional design considerations to avoid potential confounds.

Since the intent of this experiment is to make comparisons of the switching rates among subjects in various conditions in the experiment, it is essential that the different conditions of the experiment be as similar as possible except for the manipulations described earlier. For example, it is desirable that the same stimuli be used for the four choices subsequent to the change, irrespective of the period in which the change occurs. This, at a minimum implies that the sequence of top scoring stores on the four subsequent choices be consistent across the various conditions of the experiment.

Figure 4-2 contains the actual utility values assigned to each store during each period by condition. Comparing the two conditions in which

CONDITION A3

			A3							
Store										
A	43	37	18	23	22	17	20	24	23	17
B	19	30	22	17	21	22	22	18	19	22
C	16	16	12	16	13	15	12	16	13	15

CONDITION B3

			B3							
Store										
A	43	37	36	46	44	34	40	48	46	34
B	19	30	44	34	42	44	44	36	34	44
C	16	16	12	16	13	15	12	16	13	15

CONDITION A7

							A7			
Store										
A	43	37	41	38	46	41	18	23	22	17
B	19	30	16	26	23	19	22	17	21	22
C	16	16	12	16	13	15	12	16	13	15

CONDITION B7

							B7			
Store										
A	43	37	41	38	46	41	36	46	44	34
B	19	30	16	26	23	19	44	34	42	44
C	16	16	12	16	13	15	12	16	13	15

Note: Condition A3 - A down in period 3
 Condition A7 - A down in period 7
 Condition B3 - B up in period 3
 Condition B7 - B up in period 7

Figure 4-2
Experimental Stimuli

store A drops its utility level (the boxes labeled A3 and A7 in Figure 4-2) reveals that the same stimuli values are used for the stores in periods 3-6 (when the change occurs early) as in period 7-10 (when the change occurs late). Similarly, boxes B3 and B7 in Figure 4-2 reveal that the same stimuli are used for the four periods following the change in store B's utility value. These considerations allow for relatively clean comparisons between the A3 and A7 groups and the B3 and B7 groups.

It is also desirable that comparisons be made between the A-Down and B-Up conditions in the two period of change conditions. Consider the case when the change occurs early. Comparing the A3 and B3 boxes reveals that the stimuli are not the same for the two conditions but they are comparable nonetheless. The stimuli for stores A and B are exactly twice the value in the B3 condition as they are in the A3 condition. Thus, the same sequence of top scoring stores is maintained (BAAB). Additionally, the stores win by the same percentage of points in the two conditions. Therefore, relatively clean comparisons can be made between the switching rates in the A3 and B3 groups.

The same pattern holds in the case where the change occurs late. The A7 stimuli values are exactly the same as the A3 values and the B7 values are exactly the same as the B3 values (exactly twice that of the A3 and A7 values. Thus, comparisons can be made between the A7 and B7 groups.

Attribution of Cause of Change. An additional design consideration concerned the explanation that was given to the subjects for the change in the market structure. It was felt that if the explanation for Store A's decrease in utility level could be attributed to some omission or

commission of the store itself, there might be very strong resentment towards Store A resulting in even its most loyal customers switching. This ceiling effect would tend to suppress differences in switching rates between subjects in the various conditions of the experiment. Therefore, the explanation for Store A's decrease in utility was described to the subjects in terms of an external event over which Store A had no control (a change in government regulations concerning dealing with Japanese distributors of video tapes). Since Store A was the only store dealing with Japanese distributors, it was the only store affected.

Likewise, in the condition where Store B raised its level of utility, the outcome was attributed to a similar external event. The instructions given to the subjects in the A-Down and B-Up conditions are presented in Appendix 12.

Notes

1. In retrospect, this approach may have decreased the effectiveness of the sunk cost manipulation.
2. Subjects in the sunk cost condition who chose not to pay the initiation fee continued with the experiment but their data was discarded.

CHAPTER FIVE DATA ANALYSIS

Introduction

This chapter presents the findings of the study described in the preceding chapter. The data collected for the experiment was analyzed at the State University of New York at Buffalo on their IBM 3081D mainframe computer. Two software packages were utilized. Statistical Analysis Systems (SAS) version 5.16 (SAS Institute, Cary, North Carolina) was used for the majority of the analyses. The reliability program contained in the Statistical Package for the Social Sciences (SPSS-X) release 3.0 (SPSS Inc., Chicago, Illinois) was used to compute reliability coefficients for the various scales developed in the dissertation.

The findings are presented in four sections. The first section provides a brief discussion of the approach taken for the analyses. The second section deals with task perception and performance measures and provides evidence that the subjects considered the experiment setting meaningful, performed the task with reasonable care, and with adequate levels of involvement. The third section presents the findings regarding the impact of the independent variables on the key dependent measures: choice, motivation to search, purchase intention, store attitudes, and confidence in store attitude. For ease of presentation, this discussion is organized around the hypotheses. Following this, the fourth section contains a discussion about the relationship between the key dependent

measures in the experiment. Even though no formal hypotheses were made regarding these relationships, several propositions were presented in Chapter Two concerning these relationships.

Analysis Approach

Recall from Chapter Four that an online/retrospective manipulation was included in the experiment. The logic for this manipulation is now briefly reviewed.

Various hypotheses concerned subjects' perceptions about their motivation to search for information and their purchase intentions at various key points of time in the experiment. If these measures were taken at the end of the experiment, subjects might have had a hard time accurately recalling their feelings and motivations at these specific points in time in the experiment. Also, there was a real fear that subjects would be unable to differentiate how they felt at the end of the experiment from how they felt at these specific key points in time (e.g., the exact moment when Store A dropped its utility or Store B raised its utility). Moreover, there might be differences in memory between subjects who observed the change in period 3 and subjects who experienced the change in period 7. These memory differences would confound the true effects of the treatments. Therefore, to insure equal levels of recall between groups it would be beneficial to have the subjects respond to these scales online during the survey phase of each experimental period.

The danger in having all subjects respond to this battery of questions online during each period is that it introduces the possibility of demand artifacts resulting in differential carryover effects. Additionally, the inclusion of these scales makes the survey portion of the

experiment excessively long. Therefore, half of the subjects received the battery of motivation to search and purchase intention scales online during the survey phase of each odd numbered shopping trip. The remaining half of the subjects were presented this set of questions retrospectively at the end of the experiment. This approach has the advantage that it allows online questioning, overcoming the problems associated with differential memory. The approach also provides the basis for an analysis to determine if differential carryover effects are present.

To determine if differential carryover effects were a significant problem in the experiment two Chi-Square exact tests were conducted. These tests examined the number of significant online/retrospective by task factor interactions across the various dependent measures in the experiment. The first analysis examines the variables directly affected by the online/retrospective manipulation (motivation to search and purchase intention). These variables were collected either online or retrospectively depending on the experimental condition. The second analysis examines all remaining variables used to test hypotheses in the dissertation. These variables were not directly affected by the online/retrospective manipulation, but nonetheless might be subject to differential carryover. Each variable analyzed resulted in a total of 7 online/retrospective by task factor interaction terms (one four-way interaction, three three-way interactions, and three two-way interactions).

The first analysis included two variables (the purchase intention and motivation to search measures). This analysis revealed 2 significant online/retrospective by task factor interactions out of a total of 14.

Assuming that 5 percent of the online/retrospective interactions would be significant by chance (at the 5 percent level of significance), the expected frequency under the null hypothesis would be 5 percent of 14 or 0.7. The goodness of fit test was not significant ($\chi^2(1)=2.41$, $p>.10$). Appendix 14 contains the details of the analysis.

The second analysis included 24 variables not directly affected by the online/retrospective manipulation. This analysis (also presented in Appendix 14) revealed 8 significant interaction terms out of a total of 168. This was not significantly different from 8.4 (the number expected to occur by chance, $\chi^2(1)=0.19$, $p>.5$). Thus, it was concluded that differential carryover effects were not a significant problem in the experiment. There were, however, large main effect differences between the online and retrospective groups responses to the motivation to search and purchase intention measures. As a result, the following approach was taken in the analysis. Analyses concerning the self report purchase intention and motivation to search measures were conducted with the online data only. This makes the analyses more meaningful since these data are a more accurate reflection of how the subjects felt at the specific periods of time of interest in the experiment. Analyses not concerning these measures were calculated with the entire data set containing the pooled online and retrospective data. ANOVA tables for all variables which had significant task factor x online/retrospective interactions are presented in Appendix 15.

Task Perception and Performance Measures

Six self-report measures assessed subjects' perceptions of the realism associated with various aspects of the experimental task. Seven

point response scales (1-7) with the end-points labeled "1 = unrealistic" and "7 = realistic" were provided for each response (the actual questions employed are presented in Appendix 13). Subjects rated all aspects of the experiment highly on these task realism dimensions as all means were greater than 5.0.

Renting video tapes received a mean of 5.38 indicating fairly high perceptions of realism. Being in a purchase situation where you don't have all the information available about certain products received a mean of 5.33. Being in a situation where a store doesn't provide identical levels of satisfaction on different occasions was rated 5.75 on the realism scale. Being in a situation where an initiation fee is required to shop at a particular store received a mean rating of 5.86. The attributes used in the study received a mean rating of 6.17 while subjects also perceived it realistic that levels of these particular attributes might vary from one store visit to the next (mean = 6.07). These means indicate that subjects perceived the task to meet mundane realism criterion.

Subjects reported making their choices fairly carefully and indicated that they tried fairly hard to earn the most points possible in the experiment (mean = 5.63, 1 = not hard at all, 7 = very hard). Subjects also reported that they paid a good deal of attention to the feedback information they were provided (mean = 5.81, 1 = very little, 7 = a lot). They also reported that they found the task to be quite easy (mean = 5.86, 1 = very difficult, 7 = very easy) and understood the task quite well (mean = 5.94, 1 = not at all, 7 = very well).

In general, the task perception and performance measures indicate that the subjects found the task to be realistic, were adequately careful in performing the task and did not find the task to be excessively difficult.

Tests of Hypotheses

Hypotheses H1

Hypothesis H1 suggested that sunk monetary costs associated with a brand or store would increase the consumer's predisposition to purchase a brand or patronize that store. ONLINE subjects responded to a self report purchase intention measure for Store A ("I feel that I am (and probably will be) a steady customer of Store A.") during the survey phase of the experiment (immediately preceding each odd numbered choice). A 7-point scale was provided for responses with the end points labeled 1 = disagree, 7 = agree. Thus, each subject responded to this scale 5 times (once each during periods 1, 3, 5, 7, and 9 of the experiment). Operationally, the hypothesis suggests that subjects who paid the initiation fee would indicate more agreement with the above scale than those who did not pay the fee. Thus, the hypothesis predicted a main effect of the presence or absence of sunk cost on the predisposition to purchase measure.

The most obvious approach to analyzing this data would be to simply perform an analysis of variance on the raw purchase intention data for each of the 5 periods that it was collected and determine if a main effect of sunk cost was evident during each period. However, this approach would be problematic because different subjects experienced the change during different periods of the experiment. It would not make sense for example,

to look at the data for period 5 since these data would include both subjects who viewed Store A as a clearly superior store because it still provided a higher level of utility than Store B, and subjects who viewed Store A and Store B to be similar in utility (since they already experienced the change in market structure).

An alternative approach was adopted for this analysis. Since a fair test of the hypothesis requires that comparisons be made across groups of subjects having similar experiences and since its of primary interest to examine the impact of sunk cost on purchase intention after the two stores are equated in terms of expected utility, the following approach was taken. A new variable (PIDEP) was created by summing two purchase intention responses provided by each subject. Specifically, the purchase intention measures from the period in which the change occurred and the next period for which this data were collected. For example, PIDEP for subjects in the condition where the market structure changes in period 3 is equal to the sum of the purchase intention measure for periods 3 and 5. These two variables were significantly correlated ($r=.58$, $p<.01$). Likewise, PIDEP was set equal to the sum of the purchase intention measures for periods 7 and 9 for those subjects who experienced the change in market structure in period 7. These two variables were also significantly correlated ($r=.56$, $p<.01$).

The ANOVA table and cell means for PIDEP are presented in Table 5-1. The main effect of sunk cost was not significant ($F(1,73)=0.23$, $p > .63$). Thus, Hypothesis H1 was not supported.

Table 5-1
Purchase Intention - PIDEF (n)
ONLINE Data Only

No Sunk Cost		Sunk Cost		Main Effect Means	
A	B	A	B	Sunk Cost	
Period				Y	9.925
3	8.4 (10)	10.6 (10)	10.2 (10)	N	9.561
7	10.9 (10)	9.8 (10)	8.40 (10)	10.67 (9)	
Source of Change					
A					9.475
B					10.000
Period of Change					
3					9.571
7					9.923

ANOVA			
Source	SS	F(1,73)	P>F
Sunkcost	2.020	0.23	.64
Source of change	6.853	0.79	.78
Period of change	2.467	0.29	.60
Sunk X Source	0.022	0.00	.96
Sunk X Period	5.034	0.58	.45
Source X Period	0.000	0.00	.99
Snk X Sour X Per	54.830	6.34	.02

Hypothesis H1A

Hypothesis H1A suggests that the sunk cost impact on predisposition to purchase would decrease as the benefits received due to incurring the cost accrue (i.e., that the sunk cost would be amortized psychologically). Operationally this suggests that subjects who paid the fee and experienced the change in the market structure in period 7 would exhibit more attrition in the sunk cost effect on the purchase intention measure than those who experienced the change in period 3. Thus, a sunk cost x period of change interaction is hypothesized as well as a simple main effect of period when the sunk cost has been expended.

Logically, since no support was found for Hypothesis H1, no support can be found for hypothesis H1A. Formally, Table 5-1 indicates no Sunk Cost x Period interaction ($F(1,73) = 0.58, p > .44$). Additionally there is no main effect of period $F(1,73) = 0.29, p > .59$. A simple main effects test of period of change when the fee was paid was also not significant $F(1,77) = 1.17, p > .28$. Interestingly, a 3-way sunk cost x period x source of change interaction was found ($F(1,73) = 6.34, p < .02$). This interaction is pertinent to Hypothesis H4 and will be discussed in the section of this chapter concerning Hypothesis H4.

Hypotheses H2 and H2A

Hypothesis H2 suggested that sunk monetary costs associated with a brand or store decreases the consumer's motivation to search for information about an upcoming purchase concerning the brand or store. Operationally, this suggests that in the face of a change in the market, subjects who paid the sunk cost would be less likely to search than subjects who did not incur the cost.

A motivation to search scale was developed for this experiment. The scale consisted of 4 items which assessed subject's motivation to search for specific information. These items were presented to the ONLINE subjects during the survey phase of the experiment, on each odd trip. Cronbach's alpha was computed for the scale separately for each period that the scale was presented (e.g., 1, 3, 5, 7, and 9). The alphas were .71, .95, .92, .96 and .93, respectively for the 5 periods in which the measures were taken of the ONLINE subjects.

Using similar logic as the tests for hypotheses H1 and H1A, a new variable MSDEP was created which was set equal to the sum of two motivation to search scales. MSDEP was set equal to the sum of the period 3 and period 5 scales for subjects who encountered the change in market structure in period 3. These variables were significantly correlated with each other ($r=.59$, $p<.01$). MSDEP was the sum of the motivation to search scales for periods 7 and 9 for subjects who encountered the change in market structure in period 7. These variables were also significantly correlated ($r=.56$, $p<.01$). Operationally, this hypothesis predicts a main effect of sunk cost on MSDEP.

Table 5-2 presents the results of the analysis of variance performed on MSDEP. The main effect of sunk cost was not significant ($F(1,73)=1.36$, $p>.25$). Thus hypothesis H2 was not supported. Logically, since H2 was not supported, there can be no support for Hypothesis H2A.

Hypothesis H3

Hypothesis H3 suggests that monetary costs associated with a brand or store increase the likelihood that the consumer will repeatedly purchase the brand or patronize the store. Operationally, this is tested

Table 5-2
Motivation to Search - MSDEP (n)
ONLINE Data Only

Period	No Sunk Cost		Sunk Cost		Main Effect Means
	A	B	A	B	
3	32.5 (10)	25.0 (10)	32.4 (10)	30.0 (12)	Sunk Cost N 28.450 Y 31.390
7	35.7 (10)	20.6 (10)	29.4 (10)	34.33 (9)	Source of Change A 32.500 B 27.439
Marginal Means					Period of Change 3 29.976 7 29.897
	34.1 (20)	22.8 (20)	30.92 (20)	31.8 (21)	

Source	ANOVA		
	SS	F(1,73)	P>F
Sunkcost	191.4685	1.36	.25
Source of change	506.8587	3.59	.07
Period of change	0.0223	0.00	.99
Sunk X Source	795.1272	5.64	.02
Sunk X Period	8.0783	0.06	.82
Source X Period	0.0895	0.00	.98
Snk X Sour X Per	280.7048	1.99	.17

by examining the choice frequencies in each of the experimental cells. Three separate measures were utilized to explore this hypothesis. The first measure considered the percentage of subjects not choosing Store A during the first two choices (i.e., before any changes in market structure). Table 5-3 presents a cross tabulation of the choice frequencies during periods 1 and 2 for Store A versus all others broken down by sunk costs versus no sunk cost subjects. Store A was chosen 93% of the time during periods 1 and 2 (296/318). Sunk cost subjects chose Store A 93.67% of the time while no sunk cost subjects chose Store A 92.5% of the time. The difference was not significant ($\chi^2(1)=.1692$, $p>.10$). This test does not support Hypothesis H3. However, at this point in time in the experiment Store A dominated the other stores. Thus, these results could be interpreted as a ceiling effect.

While the first measure examined the first two choices (where Store A provided much more utility than Store B) the second measure examined the first choice after Stores A and B were equated on expected marginal utility. Table 5-4 presents the choice frequencies for Store A versus all others during the first period after the change in market structure (i.e., the frequencies represent the number of A and non A choices in period 3 by subjects who observed the change in market structure in period 3 and the number of A and non A choices in period 7 by subjects who observed the change in period 7. The frequencies are broken down by subjects either paying or not paying the initiation fee. Table 5-4 indicates that subjects who paid the initiation fee chose Store A more frequently than subjects who did not pay the fee (72% versus 54%, respectively). This difference was significant ($\chi^2(1)=5.76$, $p<.02$). These data suggests that

Table 5-3
Choices Frequencies in Periods 1 and 2
All Subject's Data Included

	No Sunk Cost	Sunk Cost	Marginal Totals
Number Not Chosing A	12	10	22
Number Chosing A	148	148	296
Marginal Totals	160	158	318

Chi-Square (1) = .1692, ns

Table 5-4
Choices Frequencies: First Choice After Change in Market Structure
All Subject's Data Included

	No Sunk Cost	Sunk Cost	Marginal Totals
Number Not Chosing A	37	22	59
Number Chosing A	<u>43</u>	<u>57</u>	<u>100</u>
Marginal Totals	80	79	159

Chi-Square (1) = 5.76, $p < .02$

paying the fee tended to increase the probability that subjects choose Store A and is consistent with Hypothesis H3.

The final measure concerning the impact of sunk cost on choice is the number of times subjects chose a store other than Store A on the 4 choices made subsequent to the change in market structure. Table 5-5 presents the mean number of non Store A choices made by subject in the various conditions. On average, subjects paying the fee selected a store other than A 1.241 times on the 4 subsequent trips. Subjects not paying the fee chose a store other than A an average of 1.625 times during the subsequent 4 trips. This difference was marginally significant and in the hypothesized direction ($F(1,151)=3.84$, $p<.052$).

Together, these data tend to support Hypothesis H3. Even though normatively sunk costs should have no impact on future choices, subjects were still significantly more likely to choose Store A if they originally paid a fee to shop there than if they did not pay the fee. It is even more interesting to note that this effect occurred even though the sunk cost manipulation was fairly weak (i.e., the level of sunk cost was set at a very low, almost trivial, level in order to insure that subjects accepted and paid the fee). It is also interesting to note that during the first two choices (i.e., while Store A was a much better store than Store B) subjects paying the fee did not patronize Store A with any more frequency than subjects not paying the fee. Perhaps, since it was quite early in the simulation, subjects were merely feeling their way through the procedure, negating the impact of the sunk cost. Alternatively, as alluded to earlier, a ceiling effect explanation can also account for these data.

Table 5-5
Average Number of Non A Choices During Four Choices
Following Change in Market Structure
All Subject's Data

Period	No Sunk Cost		Sunk Cost		Main Effect Means	
	A	B	A	B		
3	1.70	1.55	0.85	1.33	Sunk Cost	
	(20)	(20)	(20)	(21)	Y 1.241	
7	1.45	1.80	1.50	1.27	N 1.625	
	(20)	(20)	(20)	(18)		
					Source of Change	
					A 1.375	
					B 1.494	
					Period of Change	
					3 1.358	
					7 1.513	

ANOVA			
Source	SS	F(1,151)	P>F
Sunkcost	5.87382983	3.84	.05
Source of change	506.85874126	0.34	.55
Period of change	0.02237762	0.57	.45
Sunk X Source	795.12727273	0.10	.93
Sunk X Period	8.07832168	0.57	.45
Source X Period	0.08951049	0.07	.80
Snk X Sour X Per	280.70489510	2.36	.13

Hypothesis H3A

Hypothesis H3A suggests that the sunk cost effect will be an inverse function of the accumulated benefits gained as a result of increasing the cost (i.e., the sunk cost effect would be psychologically amortized). Operationally, this hypothesis suggests a simple main effect of period for sunk cost subjects with greater switching to Stores B and C after a change in market structure occurring in period 7 than after a change occurring in period 3. The planned contrast was not significant. Thus, no support was found for the hypothesized psychological amortization effect.

Several possible explanations exist for this null finding besides the possibility that the hypothesis is incorrect. First, as was previously mentioned, the sunk cost manipulation was weak, possibly accounting for the null result. If the subjects perceived the outlay as trivial, then following the logic of the psychological amortization hypothesis, they might have simply amortized the sunk cost immediately or very soon after paying it. However, this explanation seems unlikely in light of the strong main effect of sunk cost. A second explanation, however, appears more likely. While subjects might psychologically amortize a sunk cost and as hypothesized slowly decrease the likelihood that they continue on with the current store, simultaneously they may also develop more favorable attitudes and develop more confidence in their attitudes as well as an increased accessibility to these favorable attitudes because of their repeated satisfactory experiences with the store or brand. Thus, the effects of psychological amortization may be countered.

Table 5-6 presents the overall attitude and confidence in attitude scores for subjects who experienced the change in market structure in period 7. By examining the table, one can see that the attitude scores for Store A tended to steadily increase from the first period up until the time when the change in the market structure occurred in period 7. One would expect that subjects in the period 3 change condition would exhibit a similar pattern of attitude measures had the change in market structure not occurred until period 7. A paired comparisons t test was conducted which compared the attitude score for Store A in period 2 with the attitude score for Store A in period 6 (i.e., a comparison was made between what the attitude score would be one period before the change for the period 3 subjects and one period before the change for the period 7 subjects.). The difference, however, did not reach customary levels of statistical significance ($t(76)=1.41$, $p<.164$). The difference is, however, in the hypothesized direction.

Table 5-6 also presents the confidence in attitude data for subjects in the period 7 condition. By examining the means, one can see that confidence in attitude increases steadily from 6.33 in period 1 to 6.56 in period 6 (on a 7 point scale). A paired comparisons t test between period 2 and period 6 confidence scores was significant ($t(76)=1.95$, $p<.054$).

These data, along with the confidence in attitude data are consistent with Powell and Fazio (1984) who found that repeated measurement of attitudes increased attitude accessibility. They further postulate the more accessible the attitude the more likely it will effect behavior. This argument parallels the idea that repeated measurement and

Table 5-6
Average Attitude Scores for Store A Across Periods
Period 7 Subjects Only (n=78)

<u>Period</u>	<u>Relative</u> <u>Attitude</u>	<u>Absolute</u> <u>Attitude</u>	<u>Confidence in</u> <u>Attitude</u>
1	.46	12.52	6.33
2	.46	12.57	6.37
3	.46	12.51	6.48
4	.47	12.67	6.57
5	.47	12.76	6.57
6	.47	12.76	6.56
7	.42	11.67	6.40
8	.41	11.37	6.37
9	.42	11.73	6.32
10	.43	11.82	6.47

thus increased accessibility would tend to instill greater confidence in the attitude. With repeated measurement of attitude especially when the attitude is being reinforced by successful brand experiences, confidence in the attitude should increase.

Additionally, similar analyses were conducted which examined the relative accessibility period 7 subjects had to their attitudes and their accessibility to their confidence in attitudes by examining the average reaction times subjects required to respond to the attitude and confidence in attitude questions in periods 2 and 7. Regarding the attitude measures, subjects had a mean response time of 6.93 seconds for the attitude question in period 2. This was significantly longer than the mean response time of 2.63 subjects required in period 6 ($t(76)=9.82$, $p<.01$). Period 7 subjects also responded more quickly to the confidence in attitude questions in period 6 than they did in period 2 (1.06 seconds versus 2.32 seconds, respectively). This difference was also significant ($t(76)=8.25$, $p<.01$).

These data are consistent with the explanation previously offered for the lack of an observed psychological amortization effect. Increased attitude scores, confidence in attitudes and attitude accessibility may counteract the impact of psychological amortization in terms of choice and purchase intention. Thus, the effect may actually be present but this experiment was not sensitive enough to tease apart the relative impacts of psychological amortization and increased attitude scores, confidence and accessibility.

The point should be made that in many natural settings where psychological amortization may occur, this countervailing force (namely

increased attitude, confidence and accessibility) may reduce or effectively eliminate an observed manifestation of the effect. While the two forces do tend to work against each other and would appear to be correlated in the marketplace, nonetheless an interesting study could be done to explore the effect. The more interesting case, however, may be one in which the incumbent brand performs poorly rather than well. Managerial implications in this case would be no less relevant and additionally one would be better able to determine if psychological amortization of sunk costs was a common response since the attitude score would decrease rather than increase with time and experience. This would simplify the task of teasing apart these effects.

Hypothesis H4

Hypothesis H4 suggests that when a currently patronized store (or purchased brand) reduces its level of utility, the consumer is likely to give greater consideration to the other stores (or brands) than in a situation where an alternative store (or brand) increases its level of utility by the same amount.

Operationally, this hypothesis suggests that there should be a main effect of source of change on motivation to search for information, purchase intention, and repeat purchase behavior.

Motivation to search. There was a marginally significant main effect of sources of change ($F(1,73)=3.59$, $p < .07$) and a significant sunk cost x source of change interaction ($F(1,73)=5.64$, $p < .02$). See Table 5-2.

The interaction suggests that the source of the change in market structure had an impact on subjects who did not pay the initiation fee but

had little impact on those who did. The mean motivation to search scale score for those not paying the initiation fee was 34.1 when Store A reduced its level of utility and 22.8 when Store B increased its level of utility. The post-hoc follow up test indicates that this difference was significant ($F(1,73)=4.51, p<.04$). However, a similar follow up test of the difference between the A-down and B-up condition subjects who paid the fee revealed that the sunk cost factor was not significant ($F(1,73)=1.0, p>.32$). The means were 30.92 and 31.8, respectively.

One way to interpret this interaction is by way of the problem framing hypothesis suggested in H4. When no sunk cost is incurred and Store A dropped its level of utility, a greater motivation to search for information occurred than when Store B raised its level of utility. If the better (current) store drops its level of utility, subjects are likely to notice and care about this change since they may view it as a loss. This increased awareness that something is amiss in the marketplace (and that it affects them directly) may lead to an increased interest in the activity and thus a higher intention to search for information. Alternatively, when a brand other than the currently selected brand raises its level of utility to the same level as that of the current brand, this may be viewed as having a less direct impact on the subject and may be viewed more as a continuation of the status quo. Thus, less motivation to search exists.

However, when the sunk cost has been paid perhaps either Store A reducing its level of utility or Store B increasing its level of utility creates a heightened interest in the activities of the market. Paying the fee in effect involves the individual more in the marketplace. While the

main effect of sunk cost is not significant, the means are in the direction consistent with this explanation. When the sunk cost was not paid the average search score was 28.45, while the average score was 31.39 when the sunk cost was incurred.

Examination of the source of change by sunk cost interaction data in Table 5-2 suggests that motivation to search is affected by the source of change when no sunk cost is incurred, but little difference is prevalent when there is a sunk cost. This data is consistent with the spirit of Hypothesis H4.

Purchase intention. Table 5-1 reveals an interesting pattern of means for the purchase intention data. While there is no significant main effect of source of change, there was a significant 3-way (sunk cost x period x source of change) intention ($F(1,73) = 6.34, p < .02$). Examination of the cell means reveals an interesting pattern of results. When there was no sunk cost and the change occurred early (period 3) Store B raising its level of utility resulted in greater purchase intention (mean = 10.6) for Store A than when Store A dropped its level of utility (mean = 8.4). The contrast was not significant ($F(1,73)=.84, p > .5$) but the direction of the difference is consistent with the motivation to search data and a problem framing explanation. However, the opposite pattern of results occurred when the change in market structure occurred late. In this case, greater purchase intention towards Store A was exhibited when Store A dropped its level of utility (mean = 10.9) than when Store B raised its level of utility (mean = 9.8). Again, the contrast was not significant ($F(1,73)=0.147, p>.5$). This pattern (A-down creates lower purchase intention than B-up in period 3, A-down creates

higher purchase intention than B-up in period 7) is completely reversed when a sunk cost is incurred. In period 3, A down created greater purchase intention (mean = 10.21) than B up (mean = 9.17) and in period 7 B up created greater purchase intention (mean = 10.67) than A down (mean = 8.4). Again these contrasts were not significant ($F(1,73)=.142$, $p>.5$ and $F(1,73)=0.8$, $p>.5$, respectively).

Interpreting this 3-way interaction is quite difficult especially since the follow up tests were insignificant. Therefore, no additional attempt will be made to interpret this interaction.

Repeat purchase. Interestingly, the same patterns of means occurred with the choice data as the purchase intention data, although in this case the interaction was not significant [$F(1,151)=2.36$, $p>.13$ (Table 5-5)]. However, one can argue that the high correlation between the purchase intention and choice measures may be due to the repetitive nature of the subjects' task and the contiguity between the purchase intention and choice measures. In general, subjects may have decided what their subsequent choice will be when they responded to the purchase intention measure. Thus, one must be careful not to make too much of this interaction. It should not be surprising that it mimics the pattern found in the purchase intention measures. In any event, there is very limited support shown in these data for the choice and purchase intention components of Hypothesis H4. However, there was limited support for the hypothesized effect on motivation to search for information.

Hypothesis H5

Hypothesis H5 suggested that when a consumer perceives that a psychological contract has been broken, there will be an even greater

tendency to consider alternative stores or brands. Operationally, this hypothesis suggests that for subjects who paid the initiation fee the source of change factor will have a larger impact on motivation to search, purchase intention, and repeat purchase when the change occurs in period 3 than when the change occurs in period 7. If a store drops its utility in period 3 then the subjects should feel that they have been mistreated by Store A and therefore have greater motivation to search, less purchase intention toward Store A, and exhibit less repeat purchase behavior towards Store A, than if the change occurs in period 7 or the source of the change is Store B. Table 5-7 presents pertinent manipulation check data for subjects in the sunk cost condition.

Five questions which were presented in the task reaction questionnaire are pertinent to these hypotheses (see Appendix 13). The first question assessed whether subjects perceived that they were treated fairly by Store A. Of the subjects who experienced the change during period 3, those subjects for whom Store A dropped in utility reported a mean agreement on the fairness scale of 4.4. This was significantly lower than the mean of 6.19 reported by subjects for which Store B raised its utility level ($F(1,39)=10.16, p<.01$). However, a similar difference did not occur for subjects who experienced the change in period 7 of the experiment ($F(1,36)=0.76, p>.3$). The means were 4.45 and 4.94, respectively for the A-down and B-up conditions. This is the pattern of results the experiment was designed to generate.

The second question examined subjects' perceptions of whether they were treated justly by Store A. The same pattern of results was manifested for this question. Subjects who experienced a drop in Store

Table 5-7
Reactions to Store A's Behavior and Paying the Initiation Fee
Contrasts Between A Down and B Up Subjects During Periods 3 and 7

At this point in time, I feel that Store A treated me unfairly.
 Disagree 1 2 3 4 5 6 7 Agree

Period 3		Period 7	
A Down	B Up	A Down	B Up
4.4	6.19*	4.45	4.94*
$F(1,39)=10.16, p < .01$		$F(1,36)=0.76, p > .30$	

At this point in time, I feel that Store A treated me justly.
 Disagree 1 2 3 4 5 6 7 Agree

Period 3		Period 7	
A Down	B Up	A Down	B Up
4.4	5.76	4.70	5.27
$F(1,39)=5.99, p < .02$		$F(1,36)=1.24, p > .27$	

Responses to the following three questions were summed to form one scale.

At this point in time, I feel that the initiation fee I paid to join Store A was a good investment.

I am happy I paid the fee to join Store A.

At this point in time, I feel that Store A provided sufficient value to warrant paying the 100 point fee.

Disagree 1 2 3 4 5 6 7 Agree

Period 3		Period 7	
A Down	B Up	A Down	B Up
11.8	15.05	14.55	14.0
$F(1,39)=3.35, p < .07$		$F(1,36)=0.14, p > .71$	

Alpha for scale = .98

* Note these means have been reverse scaled so that they reflect the degree to which the subject perceived that he was treated fairly by Store A

A's utility in period 3 felt they were treated significantly less justly (mean = 4.40) than the subjects for which Store B raised its utility level in period 3 (mean = 5.76). This difference was significant, $F(1,35) = 3.99$, $p < .02$. The difference between subjects for which Store A dropped its utility level and Store B raised its utility level in period 7 was not significant ($F(1,36)=1.24$, $p > .27$). The means were 4.7 and 5.27, respectively. Again, this was the pattern of results desired.

Finally, three questions asked subjects about whether they, in retrospect, thought that paying the fee was a good idea. Since the intercorrelations were so high between these three questions a single scale was formed. The scale was reliable ($\alpha = .98$). Again, the same pattern of results was found in the analysis of the scale. When Store A dropped its utility in period 3, subjects exhibited significantly less satisfaction with paying the fee (mean = 11.8) than when subjects experienced a raise in Store B's utility in period 3 (mean = 15.05). This difference was significant, $F(1,39) = 3.35$, $p < .07$. A significant difference was not observed for subjects who experienced the change in period 7 ($F(1,36)=1.24$, $p > .27$). The means were 14.55 and 14.0 for the A down and B up conditions, respectively. These results serve as manipulation checks and confirm that subjects were less happy when Store A reduced its level of utility than when Store B increased its level of utility. Moreover, this difference was only significant when the change occurred in period 3 of the experiment, not when the change occurred in period 7. The discussion will now turn to the examination of the hypothesis.

Motivation to search

Table 5-2 presents mean scores on MSDEP (described earlier) for the sunk cost subjects who experienced the change in period 3. Of these subjects, those who experienced a drop in Store A utility reported a mean motivation to search score of 32.4. This was higher than the mean of 30.0 reported by subjects in the b-up condition. However, a planned contrast of the difference was not significant ($F(1,20)=0.26, p>.62.$). These data provide little support for Hypothesis H5.

Purchase intention

Table 5-1 presents the mean scores on PIDEF (described previously). For those subjects who paid the fee and experienced Store A dropping its level of utility in period 3, the mean purchase intention level was 10.2. This was not significantly greater than the mean of 9.17 exhibited by the subjects who experienced an increase in Store B's utility in period 3 ($F(1,20)=0.46, p>.5$). These data provide little support for Hypothesis H5.

Repeat purchase

Table 5-5 presents the average number of non A choices during the first four periods following the change in market structure. Sunk cost subjects who experienced a drop in Store A's utility in period 3 chose a store other than A an average of .85 times during the subsequent four shopping trips. Sunk cost subjects who experienced a rise in Store B's utility level during period 3 chose a store other than A on average of 1.33 times during the next four shopping trips. The direction of the difference was consistent with the Hypothesis H5, however, the planned contrast was not significant ($F(1,39)=1.82, p>.18$). Little support is

found in these data for Hypothesis H5. Overall the data provide little support for Hypothesis H5.

In summary, the findings concerning the explicit research hypotheses are somewhat mixed. While little support was found for the more detailed hypotheses concerning psychological amortization and the impact of psychological contracts and problem framing, it is very clear that the sunk cost had an effect on choice. This finding is consistent with previous research and extends the domain of the findings to situations involving repeat purchase behavior and brand loyalty.

The next section of the chapter turns to a discussion of the relationship among the various dependent measures utilized in the experiment. While the data obtained in this experiment are inadequate for conducting a meaningful causal modeling test of the entire model of customer loyalty, this section presents the results of some fairly simple analyses of these relationships. A formal test of the model is reserved for future research.

The Relationship Between Key Variables In The Framework

The relationship between attitude and choice

Attitude scores were formed for all subjects by adding together the responses from two attitude questions presented for each store in the survey portion of the experiment. These questions were:

"How much do you like or dislike Store X in general?"

and

"In general, how good or bad of a store do you think Store X is?"

Subjects were provided with 7-point response scales with the end points labeled "dislike" and "like" and "bad" and "good" respectively. In all

cases, higher numbers reflected greater liking for the respective store. Relative attitude scores for Store A were formed by dividing Store A's attitude score by the sum of Store A's and Store B's score.

Table 5-8 presents the correlations between attitude scores for Store A, relative attitude scores for Store A, and choice of Store A by period. This table indicates that the correlation between attitude scores and choice were quite high. Absolute attitude score/choice correlations ranged from a low of .206 to a high of .386 across the 10 periods of the experiment. All ten scores were significant ($\alpha < .01$). Table 5-8 also reports a similar range of relative attitude score/choice correlations. All ten correlations were also significant ($\alpha < .01$). However, it is important to note that the proximity of the choice and attitude measures may have produced some demand which contributed to the high attitude-behavior correlation.

An additional analysis examined the overall correlations between attitude and relative attitude with choice. Individual attitude/choice and relative attitude/choice correlations were computed for each subject across the ten periods of the experiment. These correlations were then entered into a repeated measures analysis of variance procedure. Table 5-8 indicates that the mean attitude/choice correlation was .18 and the mean relative attitude/choice correlation was .24.¹ These correlations are each significant ($\alpha < .01$) and the planned contrast comparing the attitude/choice and relative attitude / choice correlations was significant ($F(1,120)=9.93, p < .01$). This result is encouraging and suggests that future research concerning attitude behavior relationships should incorporate the concept of relative attitude.

Table 5-8
Correlations Between Relative Attitude Towards Store A,
Absolute Attitudes Towards Store A and Choice of Store A
By Period (Significance Level)
All Subjects Data Included

Period	Absolute* Attitude - Choice Correlation (Significance)	Relative* Attitude - Choice Correlation (Significance)
1	.254 (.002)	.101 (.059)
2	.301 (.001)	.232 (.001)
3	.212 (.008)	.354 (.001)
4	.214 (.007)	.352 (.001)
5	.347 (.001)	.383 (.001)
6	.386 (.001)	.364 (.001)
7	.287 (.001)	.403 (.001)
8	.230 (.001)	.345 (.001)
9	.236 (.003)	.252 (.001)
10	.206 (.009)	.297 (.001)

* Computed on the entire data set.

Mean Correlation between Absolute Attitude and Choice
 (Computed separately for each subject and then averaged) = .182 (.001)

Overall Correlation between Relative Attitude and Choice
 (Computed separately for each subject and then averaged) = .237 (.001)

Figures 5-1 through 5-8 present the average attitude scores and choice proportions for each store across all 10 trips of the experiment by condition. These figures graphically indicate the close relationship between attitude and choice and simultaneously provide a graphical examination of the impact of the experimental factors on attitude and choice.

Figure 5-1 presents the findings from the no sunk cost A3 condition. Here, Store A initially elicits the highest attitude scores which are held through period 2. Also, virtually all of the choices in the first two periods of the experiment are for Store A. However, in period 3 (when Store A downgraded its utility to the same level as Store B) attitude scores dropped to approximately the same level as Store B's. However, Store A did maintain a slight advantage in attitude score throughout the remainder of the experiment. Examining the bottom portion of this figure indicates that choices were fairly highly correlated with the attitude scores and were split roughly 50-50 between Stores A and B for the remainder of the experiment.

Figure 5-2 reveals a similar relationship between attitudes and choice in the no sunk cost B3 condition. Here attitude scores for Store A started at a high level and remained fairly flat across the 10 periods. Store B, however, starts at a fairly low level but experiences an increase in attitude score in period 3 (when its utility level was increased). Again, choices follow the pattern of attitude scores fairly closely. Store A dominates choice for the first two periods, but the choices are split primarily between Stores A and B for the remainder of the experiment.

Attitude Scores and Choice Frequency Sunkcost=No Period=3 Source=A

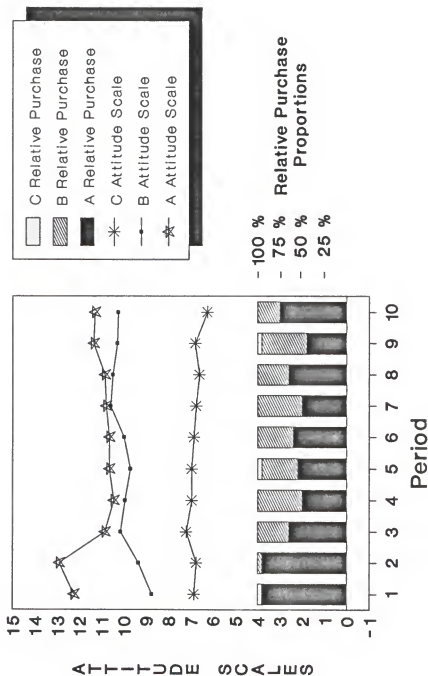


Figure 5-1
Attitude Scores and Choice Frequencies: Condition 1

Attitude Scores and Choice Frequency Sunkcost=No Period=3 Source=B

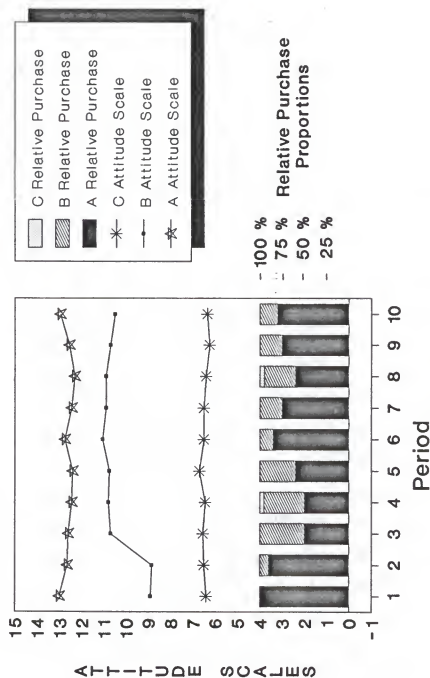


Figure 5-2
Attitude Scores and Choice Frequencies: Condition 2

Attitude Scores and Choice Frequency Sunkcost=No Period=7 Source=A

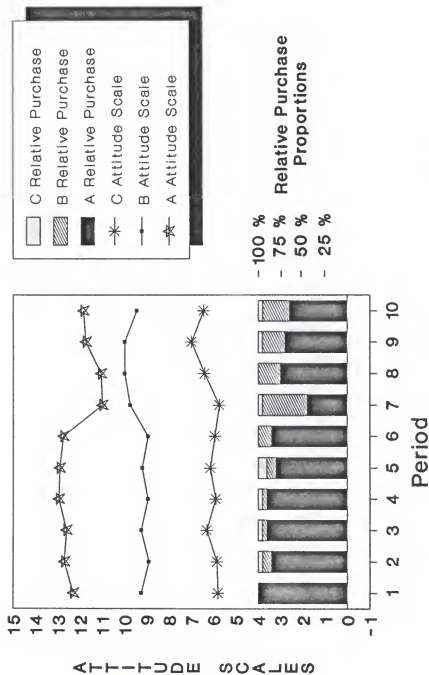


Figure 5-3
Attitude Scores and Choice Frequencies: Condition 3

Attitude Scores and Choice Frequency Sunkcost=No Period=7 Source=B

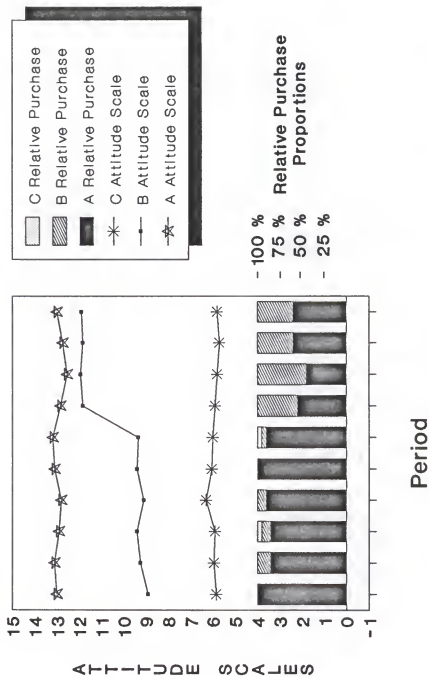


Figure 5-4
Attitude Scores and Choice Frequencies: Condition 4

Attitude Scores and Choice Frequency Sunkcost=Yes Period=3 Source=A

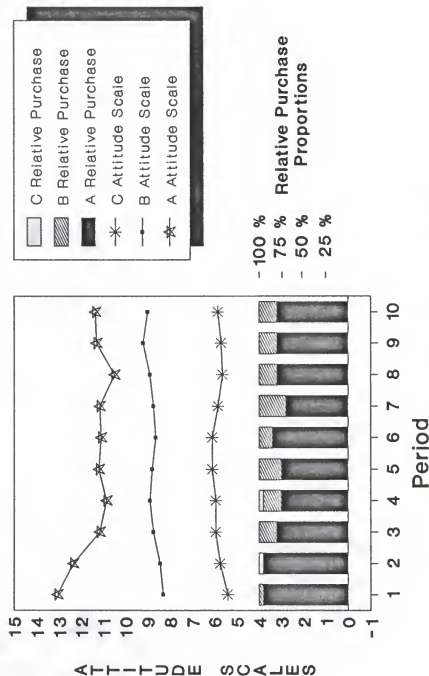


Figure 5-5
Attitude Scores and Choice Frequencies: Condition 5

Attitude Scores and Choice Frequency Sunkcost=Yes Period=3 Source=B

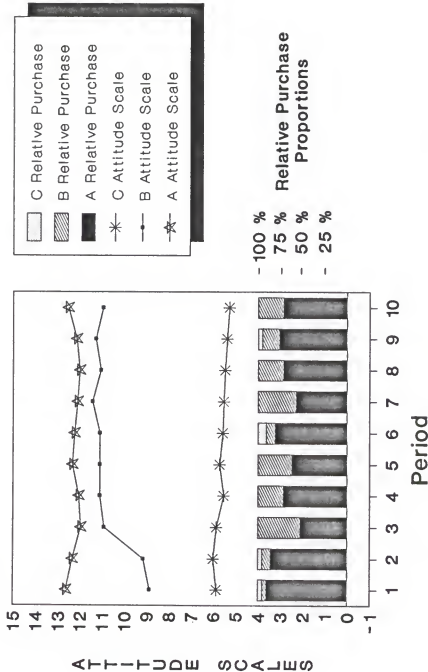


Figure 5-6
 Attitude Scores and Choice Frequencies: Condition 6

Attitude Scores and Choice Frequency Sunkcost=Yes Period=7 Source=A

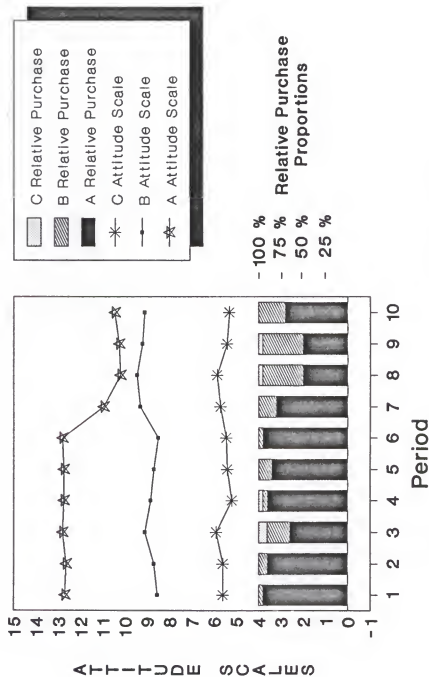


Figure 5-7
Attitude Scores and Choice Frequencies: Condition 7

Attitude Scores and Choice Frequency Sunkcost=Yes Period=7 Source=B

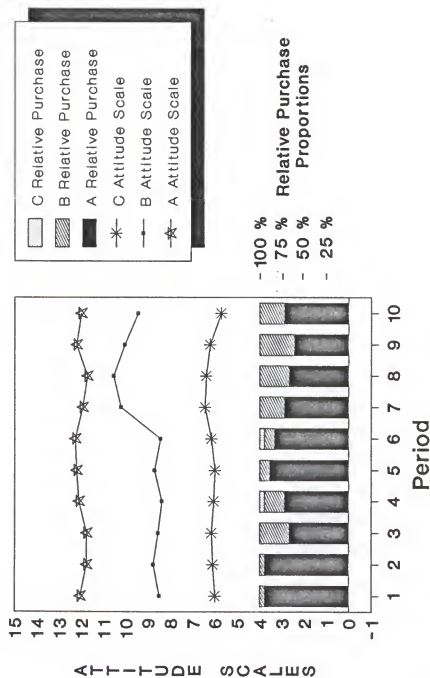


Figure 5-8
Attitude Scores and Choice Frequencies: Condition 8

Figures 5-3 through 5-8 graphically depict the attitude and choice frequency data for the remaining cells of the experiment. Since these results have already been discussed at length, no further discussion of these figures will be provided.

The relationship between the other variables in the framework

As mentioned previously, measures of purchase intention and motivation to search were administered to subjects in the ONLINE condition of the experiment during the survey phase of trips 1, 3, 5, 7 and 9. Attitude and confidence in attitude scores were taken for each subject every period. To facilitate the examination of these correlations an analysis was performed on the ONLINE subjects' attitude towards Store A, relative attitude towards Store A, confidence in attitude about Store A, purchase intention towards Store A, choice of Store A and motivation to search for information data. This data was analyzed across the 5 periods (1, 3, 5, 7 and 9) for which complete data was available from the ONLINE subjects. The resulting correlation matrix is presented in Table 5-9.

Table 5-9 provides a good deal of support for the propositions presented in Chapter Two. There are significant positive correlations between relative attitude, confidence in attitude, purchase intention, and choice as suggested in the framework and considerable previous research. While no causal modeling has been attempted here, there is at least simple correlational evidence for several of the key relationships identified in the framework.

Table 5-9
Correlation Matrix of Key Dependent Measures (significance)

	Absolute Attitude Towards Store A	Relative Attitude Towards Store A	Confidence In Attitude Towards Store A	Purchase Intention Towards Store A	Choice of Store A	Motivation To Search For Information
Absolute Attitude Towards Store A						
Relative Attitude Towards Store A	.61 (.01)					
Confidence In Attitude Towards Store A	.27 (.01)	.14 (.01)				
Purchase Intention Towards Store A	.59 (.01)	.37 (.01)	.27 (.01)			
Choice of Store A	.31 (.01)	.36 (.01)	.14 (.01)	.43 (.01)		
Motivation To Search For Information	.01 (.72)	-.01 (.79)	.05 (.31)	.18 (.01)	.09 (.08)	

Contrary to expectations, however, motivation to search was not correlated with attitude, relative attitude or confidence in attitude towards Store A. It was positively correlated with purchase intention towards Store A and reached marginal significance with choice.

These results are encouraging and suggest that further research into the proposed framework is warranted. The next chapter summarizes the findings of this study and suggests directions for future research.

Note

1. Note, these correlations are smaller than the overall correlations presented earlier. This is the result of a relative range restriction in the individual subjects' correlations as compared to the correlations computed across subjects.

CHAPTER SIX DISCUSSION

Introduction

This final chapter of the dissertation presents a summary discussion of the research findings. The first section of the chapter lays out the limitations of the study and identifies areas where procedural improvements are needed. The second section presents a discussion of the experimental results and their implications. The third section of this chapter introduces the idea that effort spent learning about a product or store may also be viewed as a sunk cost and have an impact on behavior. The fourth section describes an experiment designed to examine the effects of effort based sunk costs on customer loyalty. Finally the fifth section presents an overall summary and suggests possible directions for additional research.

Limitations of the Study

Several caveats must be provided before interpreting and discussing the findings of this study. The first limitation stems from the artificiality of the experimental situation. This experiment attempted to condense into a 45 minute period of time, many of the physical and psychological activities that might occur for a consumer who rents video tapes over a ten week period of time. In other words, the experiment was designed to simulate a natural situation in which a sunk cost might be incurred, several repeat purchases are made, different degrees of loyalty

are developed, and changes occur in the desirability of the marketplace offerings. In retrospect, attempting to accomplish this in a 45 minute time period, seems overly ambitious.

The researchers attempted to capture all the pertinent aspects of this type of situation by including realistic elements of risk and reward. This was handled by setting the experiment in the context of a computerized shopping game in which subjects attempted to maximize utility points. These points determined the likelihood that subjects would receive a monetary reward. However, the experiment failed to provide realistic levels of other various dimensions found in the environment and consequently suffered from these omissions. First, the timing of the experiment was problematic. Customer loyalty is commonly built over relatively long periods of time. To try to build it in a 45 minute simulation now appears to be unrealistic. Condensing large amounts of information and experience (albeit artificial) into such a short period of time does not allow subjects to experience the activities normally associated with this type of purchase situation. For example, normally consumers would have a great deal more time to decide how to respond to a change in the market structure than was allotted in the experiment. Although subjects reported that the task was fairly easy, this may have been the result of their employing simplifying heuristics to make it easy for them to complete the task. One example of these is ". . . well Store A was better than Store B two times in row, I'll pick Store B this time, its due . . ." (i.e., the classic gambler's fallacy). It is unlikely that consumers would utilize this type of choice strategy in a real decision about which video store to visit this particular week.

This type of choice strategy was largely a result of the artificiality of the experimental situation and is consistent with the behavior of other subjects involved in similar game playing experiments.¹ In fact, given the reward structure of the experiment this choice strategy could be viewed as a rational approach. If the task were taken literally then subjects were to attempt to score the most points possible in the experiment. Some subjects may have tried to do this, not by acting as they would in a similar situation in the real world, but by adopting game playing strategies that make little sense outside of the context of the simulated scenario. "Pick B because A has been better for two periods in a row" makes as much sense as "stay with Store A because it is as good as Store B and I have had good luck there so far," since both Store A and Store B had the same expected utility. In the abstract, the two strategies have the same expected value, thus they make equal sense from a rational economic perspective. In fact, one could argue from the subjects' perspective that the former approach makes more sense since the game would appear to be too easy if one simply became loyal to Store A. Some subjects might have reasoned that choosing Store A every time would have been suboptimal since it would be too simplistic of a strategy to win the contest. Further, they might have felt that the experimenter was trying to fool them into doing so. Therefore, some subjects may have felt that their task was to try to predict the particular periods in which Store A would score better than Store B and vice versa. Thus choice strategies like the one discussed above may make perfect sense, even though they would not appear to be particularly likely in the real world.

This, however, would not tend to bias the results of the experiment, but would simply add a great deal of error variance.

Related to the issue of the unrealistic situation is the fact that the level of the initiation fee had to be set at a relatively low level in order to achieve adequate acceptance of the fee. At the beginning of the experiment, subjects were told that there was an average difference of 20 points between the payoffs of Stores A and B. Since the game was to go on for 10 periods, the expected gain by being able to shop at Store A was 200 points. Thus, one would expect that subjects would be willing to spend upwards of 200 points so that they would be able to shop at Store A. However, very extensive pretesting revealed that subjects would not be willing to pay anywhere near 200 points as an initiation fee, even when they were given very strong warnings about the consequences of not paying the fee. After considerable pretesting, the fee was reduced to a point where many of the subjects viewed it as trivial (100 points). This, no doubt weakened the strength of the sunk cost manipulation. One overriding question remains. Why were subjects so reluctant to pay the fee?

The answer to this question probably also revolves around the artificiality of the situation. Prior to being asked to pay the fee, the subjects had very little experience with any of the movie stores. In order to alleviate the reluctance to accept the fee, an attempt was made in the experiment to provide rich descriptions of the stores rather than just sterile expected utility information (see Appendix 3). This was probably a step in the right direction, but it did not go far enough. In the real world, when people make decisions about investing in an initiation fee to join a club, they probably do a considerable amount of

search prior to making the decision. They need to feel that they have experienced certain aspects of the clubs being considered before making a commitment, especially if they view the fee as non trivial. This might involve in depth discussions with salesmen or friends, or a visit to one or more of the clubs being considered to get some first hand experience with the alternatives. Clearly, this type of experience could be built into an experiment of this type. For example, classmates could provide information to each other about their experience with the stores or several practice shopping trips could be made at each of the stores prior the required payment of the fee. This would be analogous to free trial visits which are common in the health club industry.

Additionally, artificiality in the feedback stage of the experiment was problematic as well. At the end of each shopping trip, subjects were told the number of utility points they had earned on the trip. They were not given rich descriptive information similar to what they would receive in the real world (e.g., how much time they spent waiting in line, how easy it was to locate the movies they were interested in, how helpful the salespeople were, how enjoyable the experience was etc.). This did little to foster feeling of loyalty, however, it could easily be built into an experiment of this type. Moreover, there was no feeling of experience gained by the subjects on the shopping trips. The subjects simply chose an alternative and were informed of the outcome. They did not experience anything like a real store visit.

An additional problem with the feedback stage was that besides information about the number of points earned, they also received information about the number of points they would have earned had they

visited either of the other two stores. This is obviously not realistic and was a point of considerable debate when designing the experiment. The idea was that by including the feedback about the stores not visited, subjects who paid the fee would clearly see that the fee was a good investment, facilitating psychological amortization. Unfortunately, however, providing this information in the feedback stage provided subjects with the information necessary to invoke the game playing strategies. In retrospect, it probably would have been wiser to only provide feedback about the store the subject visited. Additionally, making the shopping trips more experiential should also help tremendously. For example, rather than just making a choice and observing the outcome, subjects could experience the outcome (e.g., the waiting time, the difficulty of finding movies, the obnoxious salespeople, etc..). This would tend to increase the likelihood that subjects formed meaningful attitudes about the alternatives and would facilitate the development of loyalty.

Another problem with the experiment was caused by the fact that repeated satisfactory experiences with a store tend to increase consumers' attitudes and lead to continued repeat purchase. In and of itself, this would not be bothersome, in fact it makes perfect sense and is one primary way in which loyalty is built. However, the hypothesis concerning psychological amortization of sunk costs suggests that people may be more willing to deviate from an alternative associated with a sunk cost if the sunk cost had, in the consumer's mind, paid for itself. Thus, amortization of sunk cost and attitude level, accessibility of attitude and confidence in attitude all increase with time and repeated

satisfactory experiences. Thus, this increase in attitude level and quality may offset any impact of psychological amortization on choice, making it much more difficult to detect. This problem also does not seem insurmountable. One way to attack this problem would be to insure that attitudes are stable prior to the imposition of the sunk cost. For example, one could have the subject go through ten trips in which very positive results are obtained when the subjects shop at Store A and very negative results are obtained when they shop at Stores B or C. Then Store A could require a fee for subsequent shopping at the store. In addition to reducing the problem of increasing attitude scores, it would also work towards further reducing the problems associated with the weak manipulation of sunk cost.

Another shortcoming of the experiment results from the fact that the attitude, purchase intention and choice measures are repeatedly administered in close proximity to each other. Thus, the results found in the current study may overstate the closeness of the relationship between these variables. However, the abundance of literature suggesting a strong relationship among these variables indicates that this is probably not a substantial problem.

The final limitation stems from the nature of the subject population. For this exploratory study, a small homogeneous student sample was utilized to minimize variance attributable to individual differences as well as for cost and convenience considerations. While the results of this study may generalize to other similar groups of students, there is little evidence provided in this study that they would generalize to a broader more heterogeneous population of consumers. Consequently,

the generalizability of these effects remain a question for future research to address.

Discussion and Interpretation of the Findings

Bearing in mind the study's limitations, the results described in Chapter Five suggest that incurring a sunk cost had a significant impact on choice in subsequent shopping trips. While there were no significant differences in the choice frequencies in periods 1 and 2 for Store A versus the others between sunk cost and no sunk cost subjects, there were significant differences between sunk cost and no sunk cost subjects' choices in the four periods following the point in time in which Stores A and B were equated in terms of expected marginal utility. The result is consistent with previous research dealing with sunk cost effects (e.g., Staw 1976, Staw 1981, Staw and Fox 1977, Arkes and Blummer 1985) and extends their domain to cases of repeat purchase behavior. This is especially impressive, given the weakness of the sunk cost manipulation, and underscores the importance of the phenomena to marketers. Moreover, the results of this study confirm earlier suspicions that even relatively small sunk costs can have large impacts on choice (e.g., Bart, and his Atra razor example).

However, there was not much support for the hypotheses concerning psychological amortization. Explanations for this based on design considerations have already been discussed. Hence, they will not be repeated here. This is an issue for further research efforts.

The problem framing hypothesis also received very little support. However, there was an interesting sunk cost by source of change interaction on motivation to search which was consistent with the

hypothesis. Motivation to search was higher when Store A dropped its level of utility than when Store B raised its level of utility for subjects not paying the initiation fee. This is consistent with the problem framing hypothesis. However, when subjects paid the fee there was no difference in the motivation to search levels when Store A dropped its level of utility and Store B raised its level of utility. The motivation to search levels were fairly high for subjects in both of these groups.

This suggests that paying the fee had an impact on the information processing strategies adopted by the subject. Paying the fee apparently made subjects more sensitive to a change in the environment, increasing their motivation to search regardless of the source of the change. However, this pattern did not carry over to the purchase intention and choice data.

The hypothesis concerning the psychological contract received no support. The manipulation checks were acceptable (i.e., subjects felt that they were treated less fairly and justly and felt that paying the fee was less smart when Store A dropped its level of utility in period 3 than when it dropped its level of utility in period 7, or anytime Store B raised its level of utility). However, no effects similar to the pattern seen in the manipulation checks were observed in the motivation to search, purchase intention or choice measures.

Thus, the overall results of the experiment were discouraging. The experiment does provide fairly strong evidence for the impact of sunk cost on choice, but little support was found for the other hypotheses.

In the following section of this chapter, the discussion will turn to an examination of an additional set of research questions concerning

the role of effort expended as a sunk cost and its impact on customer loyalty.

Effort As A Sunk Cost

The experiment described in the proceeding chapters examined a situation analogous to one in which consumers invest in a monetary sunk cost (i.e., the payment of an initiation fee to join a movie renting club). An alternative asset which consumers may chose to invest is their time and effort. Interesting questions concerning the impact of spent effort on future decision making are readily apparent. For example, does effort spent learning how to utilize a complex product impact on consumers' propensity to continue using that product as opposed to switching to a competing product?

Similarly, one could imagine that the effort associated with learning how to efficiently shop at various stores may impact on future store choices. For example, consider the following scenario: Imagine that a consumer (Mrs. Lynch) moves with her family to a new city. Not being familiar with any of the grocery stores in the new city, she decides to try Publix since it is closest to her house. After a number of visits to the store she has become fairly accustomed to shopping there as she has become familiar with the location of the items and departments within the store. Thus, she can get her shopping done in an efficient and timely manner. Now imagine that a different store is brought to Mrs. Lynch's attention by one of her new neighbors. This store (Food 4 Less) has much cheaper proces, a more extensive selection, and is located in an equally convenient location to Mrs. Lynch's home. Will Mrs. Lynch shop at Food 4 Less?

A number of factors might be considered in a decision such as this one. For example, the consumer's expectations about the new store will likely play a role. These include expectations about the levels of the various attributes at the new store and the her beliefs about the stability of these attribute levels over time. Also, factors related to consumer perceptions might be considered. These would include the importance of the various attributes (e.g., shopping time, convenience, selection, and price) and her perceptions of the length of time it takes and difficulty associated with shopping at the current store as well as perceptions about the length of time and difficulty associated with learning the layout of the new store. These latter factors are a form of switching cost associated with the new alternative. Finally, factors associated with the costs incurred in the process of learning about the old store may be influential. These would include the amount of time it took to become familiar with Publix and the difficulty associated with the learning process. These factors are conceptually similar to the type of sunk cost examined in the previously discussed experiment. In this case, however, the cost is not monetary per se, but instead reflects the time, effort and energy spent learning.

Having introduced by example the idea that effort spent learning may be viewed as a sunk cost, the following section of the paper, discusses in slightly more detail, various theoretical explanations for the impact of sunk cost on customer loyalty. Special emphasis is placed on examining effort as a form of sunk cost.

Conceptualizing Effort Based Sunk Cost

Figure 6-1 presents a schematic of three elements from the customer loyalty framework presented earlier (relative attitude, purchase intention and repeat purchase) augmented by a more detailed look at how sunk costs may impact on these three elements.

The bottom of the figure presents the familiar relationship among relative attitude, purchase intention and repeat purchase. A detailed discussion of these relationships was presented in Chapter Two and will not be repeated here. A discussion now follows about several different mechanisms by which sunk costs may impact these key variables.

Cognitive consistency

A number of consistency based explanations exist for the sunk cost effect. These are based on the idea that consumers will evaluate an object more positively after making an investment related to that object than prior to making the investment. This is represented by the arrow leading from the investment to the relative attitude circles in Figure 6-1. Cognitive dissonance theory (Festinger 1957) presents one plausible explanation. It suggests that once an investment was made, consumers' attitudes towards the brand chosen would increase as a result of their attempts to reduce the dissonance associated with the decision. While no previous research on sunk costs specifically measures attitudes, it would appear to be a plausible explanation for the finding. This research, however, found no evidence that paying the initiation fee had any impact on relative attitude, either before or after the change in the relative attractiveness of the two stores ($F(1,79)=0.22$, $p>.65$, and $F(1,79)=1.60$, $p>.21$, respectively).

As is usually the case when cognitive dissonance is a plausible explanation for a phenomenon, self-perception theory (Bem 1967) provides another plausible explanation. In this case, the reasoning would be that since consumers made the investment they would view themselves as liking the object of the investment and thus exhibit a favorable attitude towards the object. Again, there is little evidence for this in the experiment conducted.

Another consistency based explanation of the finding is impression management (Goffman 1959). While the self-perception and cognitive dissonance explanations suggest that people have psychological needs to be consistent, impression management theory suggests that "irrespective of whether or not people have psychological needs to be consistent . . . there is little doubt that the appearance of consistency usually leads towards social reward, while the appearance of inconsistency leads to social punishment" (Schlenker, 1980, p.204). Thus if an investment is made publicly, one would tend to want to appear consistent and thus stick with the chosen alternative. This is the primary argument made by Arkes and Blumer (1985) and parallels the reasoning of some of the arguments made by Staw (1981).

Sense of self mastery

In many situations, consumers may be in a situation where their effort spent learning how to use a product (or shop at a store) results in a feeling of mastery associated with the process of learning. It may be that if a consumer feels a sense of self mastery as a result of his effort spent learning about a product or store then a higher and more

strongly held attitude may result. This in turn should result in a stronger purchase intention and greater repeat purchase.

A fairly large literature suggests that self-efficacy, plays a central role in human behavior. Self-percepts of efficacy influence thought patterns, actions and emotional arousal (Bandura 1982). Extensive literature reviews can be found in Bandura (1977) and Bandura (1982). The basic tenant of the theory is that a person has expectations about the outcome of performing a behavior and that the more favorable the expected outcome the more likely it is that the person will perform the behavior. However, in addition to having expectations about the outcome of the behavior, the person also has expectations about his ability to perform the behavior (efficacy expectations). People might conclude that performing a behavior will be very beneficial (e.g., winning a gold medal in olympic gymnastics will result in very lucrative product endorsements) but not attempt it because they realize that they will probably be unable to perform the behavior. Bandura (1982) goes on to suggest that there are a number of sources of information that lead to efficacy expectations. These include performance accomplishments, vicarious experience, verbal persuasion and emotional arousal.

With respect to customer loyalty, efficacy expectations may be viewed as a switching cost. For example, a consumer wants to be able to do his grocery shopping this week in 30 minutes since that will allow him to be home in time to greet his children when they arrive home from school. Since he is familiar with the store he frequently shops at, he feels confident that he can accomplish the task in 30 minutes. However, if he switches to another store, he feels that he will be unable to

complete the task in the required 30 minute time period. Thus, there is a switching cost associated with shopping at the other store (the additional time required to shop there).

One could also consider issues related to self mastery in the context of a sunk cost. For example, consider a consumer who expends a moderate level of effort learning about some product or store and consequently achieves a fairly high level of proficiency. Now imagine another consumer who also engages in a moderate amount of effort in learning about a store but is given an easy solution to the problem by some external entity. The first consumer achieved proficiency by his own diligence, effort, and insight and has a feeling of self mastery. The second consumer achieved proficiency, but this proficiency is attributed to outside intervention. One might hypothesize that the first consumer may evaluate the product or store more highly than the second consumer since he has a feeling of self mastery or intrinsic reward associated with the learning experience and the second consumer does not. This higher evaluation would then consequently lead to greater repeat purchase.

Poor man's economics

Another mechanism by which sunk costs could operate is based on the assumption that consumers may reason that once a sunk cost is expended, they are entitled to benefits in exchange for their investment. Thus, consumers may hold to a course of action until such time that they feel that they have received adequate compensation for their investment (until the sunk cost has been amortized) or until they write the sunk cost off in their minds as a bad investment. This is the basic logic underlying the sunk cost hypotheses presented in Chapter Three and is represented by

arrow going from "Unamortized Sunk Costs" to "Purchase Intention" in Figure 6-1.

The propositions developed above provide the basis for an additional study using a computer based experimental paradigm. The following section contains a formal statement of the research hypotheses to be tested. This is followed by a description of the experiment.

Hypotheses

- H6 Making an investment of effort directed at learning about a product or store will increase relative attitude towards the product or store.
- H6a The greater the effort devoted, the larger the effect.
- H6b When effort is directed at learning about a product or store and that effort is perceived to result in a sense of self mastery or intrinsic reward, the effect on relative attitude will be greater than the case where no such perception takes place.
- H7 Making an investment of effort directed at learning about a product or store will result in an increased purchase intention towards the product or store.
- H7a The greater the effort devoted, the larger the effect.
- H7b When consumers realize that the effort spent learning was a waste of time, the impact of the effort on purchase intention will be minimized.

Experimental Manipulations and Scenario

In order to test these hypotheses, three factors must be manipulated. First, the amount of effort spent learning about a store must be manipulated. Second, whether or not one develops a sense of self mastery in the learning task, and finally, whether or not the consumer realizes that the effort spent learning was a waste of time. These factors can be manipulated in an experimental scenario similar to the one described above involving Mrs. Lynch.

A consumer moves to a new area and has to select a grocery store to do her weekly shopping. She selects one and begins to shop there regularly. After many shopping trips, the consumer becomes very familiar with the store but is somewhat displeased because the store has a limited selection. Then, a neighbor suggests another store which is also nearby which has a greater selection and thus will result in greater utility since all of the items required by the consumer can be found at this store. However, the consumer does not know her way around the new store at all and must, therefore, learn to shop at the new store. Moreover, she has already spent considerable effort learning to shop at the old store and it is not clear whether the consumer is willing to "throw that effort away."

This scenario will be operationalized in a computerized shopping study. The consumer will go on either 5 or 10 shopping trips at the store (size of sunk cost manipulation). During each trip, the subjects will be asked to find their way around the store and purchase ten items. They will have 100 seconds to complete each trip and will be given a number of points for each item they successfully purchase. Since the store has a limited selection, they will only be able to find about 8 of the ten items needed per shopping trip.

The store is laid out in a matrix format. A diagram of the layout is presented in Table 6-1. However, during the shopping trips, the subjects will not be able to see the entire layout. At a given point in time they will only be able to see five items: the item they are pointing to (with the joystick) and the items on all four sides surrounding the item they are pointing to. They can move the joystick freely around the

Table 6-1
Experimental Stimuli

Cabbage	Tea	Milk	Coke
Bananas	Seltzer	Diet Soda	Kool Aid
Radishes	Beer	Ginger Ale	Tomato Juice
Cantaloupe	Melon	Wine	Coffee
Papaya	Lettuce	Licorice	Corn Chips
Watermelon	Celery	Mixed Nuts	Potato Chips
Carrots	Nectarines	Dip	Cookies
Napkins	Cellophane Wrap	Tissues	Toilet Paper
Paper Plates	Hefty Bags	Ziploc Bags	Toothpicks
Sausage	Beef Ribs	Dixie Cups	Foam Cups
Hamburger	Delmonico Steak	Ribeye Steak	Hot Dogs
Bacon	Veal Chops	Fish	Pork Ribs
Salmon	Red Fish	Liver	Pot Roast

shopping matrix. However, this movement will require time. Subjects purchase the item by pointing to it with the joystick and pushing the button.

A careful examination of the stimuli presented in Table 6-1 reveals that there are two ways of viewing the organization of the items. First, the items are organized in columns where the second letter of the item is either an "A", "E", "I", or an "O". The first column contains all of the items where the second letter is an "A", the second column contains all of the items where the second letter is an "E", and so on. The items are also organized by grocery category. Fruits and vegetables are in the upper left hand corner, paper goods are in rows 8 and 9, meat and fish is along the bottom portion of the store, beverages are across the top of the store in the last three columns, and snacks are in rows 5, 6 and 7 of columns 3 and 4.

Prior to the first shopping trip, some subjects will be informed of the alphabetical layout of the matrix. Other subjects will not. This constitutes the manipulation of whether or not a sense of self mastery is achieved by learning the layout of the store. In the cases where the alphabetical layout is pointed out, subjects should feel little sense of self mastery since the learning task is fairly trivial and the solution was given to them. However, subjects not given the alphabetical layout will probably not discover it since they will be naturally looking for an organization based on grocery categories. Pretesting has showed this to be true. These subjects should develop a sense of self mastery.

To avoid confounds, it will be critical that the absolute proficiency of subjects using the alphabetical and categorical schemes for

finding items be similar. This will be accomplished by additional pretesting to be sure that the amount of time allowed for shopping permits all subjects (regardless of experimental condition) to complete the shopping tasks by the end of the last trip to the old store.

The final manipulation (whether or not the sunk cost is written off, i.e., whether or not the subjects think that the learning task was a waste of time) will be accomplished by informing subjects in the self mastery condition of the alphabetical layout after they have completed the learning task. Thus, these subjects should feel that they wasted their time and effort learning since the problem was really fairly trivial once the trick was known.

After the learning task is completed, subjects will be told about a new store. This store has a greater selection, and therefore, will allow the opportunity for subjects to earn more utility points, since fewer items will be missing. However, the new store does not dominate the other alternative since it is larger and will require some additional effort in order to learn its layout (i.e., subjects may not have enough time to accomplish all their shopping at the new store without some practice). Thus, subjects will have a choice to make. One additional shopping trip will be made at either the old or new store depending on the subjects' preferences.

Key dependent measure will include attitude towards the old store, confidence in attitude and accessibility of attitude, purchase intention (as measured in the previous experiment), and choice. Thus, while the first experiment examined the impact of monetary sunk costs, this second

experiment will examine the impact of effort based sunk costs on customer loyalty.

This second experiment has been designed to overcome two of the major limitation encountered in the first experiment. First, it is much more experiential. Subjects will actually perform a shopping task and observe first hand how they performed and realize that the rewards are based on their performance, not luck. Second, the choice does not occur until the subject actually goes through 5 or 10 shopping trips. Thus, the manipulation of sunk cost should be much stronger.

Additional Discussion and Summary

This dissertation examined the impact of sunk monetary cost on customer loyalty. Monetary sunk costs were shown to have a clear and definite impact on choice in the experiment, however, they had no impact on attitude or purchase intention. While this might have been an artifact of the experiment, the possibility exists that it was not. If these findings hold up in the second experiment and additional inquiries, this would suggest that people may tend to discount sunk costs when planning future purchases, but when the time comes to actually make the choice, the cost has an impact. Perhaps this might even occur at a subconscious level. This would suggest a conceptualization of sunk costs different from what was presented in this dissertation and suggests many additional research questions. For example, are people aware of the impact that sunk costs have on their decision making processes? If not, can marketers use this to their advantage? What is the relationship between the size of the sunk cost and the nature of the effect? Is there a linear relationship with larger sunk costs tending to produce stronger and/or longer lasting

effects than small ones? Alternatively, might the size of the sunk cost impact on the processing strategies people use in their choice? For example, might there be a linear relationship between the size of a sunk cost and its effectiveness up to a certain threshold, after which they are considered important to the consumer and, therefore, result in more rational cognitive processing during the decision making process? Thus, beyond this threshold a firm might encounter diminished effectiveness of sunk costs. How does the effectiveness of sunk cost depend on other aspects of the decision? Does the presence of an up front fixed cost associated with other alternatives increase the likelihood that the consumer thinks rationally about the costs he has already incurred in his original decision?

Thus, there are a tremendous number of questions about the impact of sunk costs for which we have no answers. The experiment conducted in this dissertation has provided some very basic information but much is still unknown. Understanding the impact of sunk costs on information processing would clearly benefit marketing practitioners as well as academic researchers. This dissertation has taken a first step at achieving that understanding.

Note

1. Personal conversation with Gary Lilian, 1986.

APPENDIX 1
PROGRAM SOURCE CODE

```

*****
REM **                                ALANDISI.BAS                                **
REM **                                **                                          **
REM **                                Alan Dick's Dissertation Experiment Program    **
REM **                                Written in Microsoft Quickbasic 2.0          **
REM **                                **                                          **
REM **                                Written by Alan Dick                        **
REM **                                Directed by Alan Dick                      **
REM **                                Original Concept by Alan Dick              **
REM **                                Starring Alan Dick                         **
REM **                                With guest appearance by Alan Dick         **
REM **                                December 1986                             **
REM **                                *****                                     **
REM ****                               *****                                     ****
REM Initialize screen -- Dimension Arrays -- Define Keys
DEFINT A-Z
REM $DYNAMIC
DIM instruct$(175)
REM $STATIC
DIM SUBSCOND%(32), Surveyresp$(10, 3, 4), box$(20), Surveytime!(10, 3, 4), CHOICE%(10),
BADCHOICE%(10), choicetime!(10), STIMVAL%(8, 10, 3), FEEDTIME!(10), END.PER.TOTAL%(10), SEARCHCOST%(10),
BS(35), TRANS%(40), NUMBOXES%(10), NETONTRIP%(10), _
TOTTIME!(10), MSG$(3), TRANS2%(50)
KEY 1, "a": KEY 3, "b"
KEY 5, "c": KEY 9, "y": KEY 10, "z"
COLOR 7, 1
CLS
REM Set Cap Lock on
DEF SEG = 0
POKE 1047, PEEK(1047) OR 64
DEF SEG
REM Define Functions

```

```

DEF FNSTRCTR% (a$)
  FNSTRCTR% = (80 - LEN(a$)) / 2 + 1
END DEF
DEF fnctr$ (a$)
  length1 = LEN(a$)
  fnctr$ = SPACE$(((80 - length1) / 2)) + a$
END DEF
DEF FNTIMEDAT$ (RT!)
  SEC = INT(RT!)
  DEC# = RT! - SEC: DEC1 = DEC#
  SEC$ = MID$(STR$(SEC), 2, 3): SEC$ = STRING$(3 - LEN(SEC$), "0") + SEC$
  DEC$ = MID$(STR$(DEC1 * 10000), 2, 4): DEC$ = "." + STRING$(4 - LEN(DEC$), "0") + DEC$
  FNTIMEDAT$ = SEC$ + DEC$
END DEF
DEF FNTIMEDAT2$ (RT!)
  SEC = INT(RT!)
  DEC# = RT! - SEC: DEC1 = DEC#
  SEC$ = MID$(STR$(SEC), 2, 4): SEC$ = STRING$(4 - LEN(SEC$), "0") + SEC$
  DEC$ = MID$(STR$(DEC1 * 10000), 2, 4): DEC$ = "." + STRING$(4 - LEN(DEC$), "0") + DEC$
  FNTIMEDAT2$ = SEC$ + DEC$
END DEF
DEF FNUMSTR$ (NUM%, LENGTH%)
  IF LEFT$(STR$(NUM%), 1) <> "-" THEN
    FNUMSTR$ = MID$(STR$(NUM%), 2, LENGTH%)
  ELSE FNUMSTR$ = MID$(STR$(NUM%), 1, LENGTH%)
  END IF
END DEF
DEF FNRJUST$ (STRN$, LENGTH%)
  FNRJUST$ = STRING$(LENGTH% - LEN(STRN$), " ") + STRN$
END DEF
DEF FNLJUST$ (STRN$, LENGTH%)
  FNLJUST$ = STRN$ + STRING$(LENGTH% - LEN(STRN$), " ")
END DEF
REM Read in instructions
OPEN "I", 1, "C:\DISS\Exp21nst.dat"

```



```

x% = 1
loop1:
  LINE INPUT #1, a$
  IF a$ = "XXX" THEN GOTO endloop1
  instruct$(x%) = a$
  x% = x% + 1
  GOTO loop1
endloop1:
  CLOSE 1

REM Read in real display values
REM X% = CONDITION XX% = PERIOD  Y% = BRAND

FOR x% = 1 TO 4
  FOR Y% = 1 TO 3
    FOR XX% = 1 TO 10
      READ STIMVAL$(x%, XX%, Y%)
      STIMVAL$(x% + 4, XX%, Y%) = STIMVAL$(x%, XX%, Y%)
    NEXT XX%
  NEXT Y%
NEXT x%

REM CONDITIONS 1 AND 5
DATA 43, 37, 18, 23, 22, 17, 20, 24, 23, 17
DATA 19, 30, 22, 17, 21, 22, 22, 18, 19, 22
DATA 16, 16, 12, 16, 13, 15, 12, 16, 13, 15

REM CONDITIONS 2 AND 6
DATA 43, 37, 36, 46, 44, 34, 40, 48, 46, 34
DATA 19, 30, 44, 34, 42, 44, 44, 36, 34, 44
DATA 16, 16, 12, 16, 13, 15, 12, 16, 13, 15

```

REM CONDITION 3 AND 7

DATA 43, 37, 41, 38, 46, 41, 18, 23, 22, 17
 DATA 19, 30, 16, 26, 23, 17, 21, 22
 DATA 16, 16, 12, 16, 13, 15, 13, 15

REM CONDITION 4 AND 8

DATA 43, 37, 41, 38, 46, 41, 36, 46, 44, 34
 DATA 19, 30, 16, 26, 23, 19, 44, 34, 42, 44
 DATA 16, 16, 12, 16, 13, 15, 12, 16, 13, 15

REM Get Subject Number - Read in SubsCond Array - GET DISK NUMBER

```

OPEN "R", 1, "Suborder.idx"
FIELD 1, 3 AS a$
GET 1, 1
SUBOrder% = VAL(a$)
FOR x% = 2 TO 17
  GET 1, x%
  SUBSCOND%(x% - 1) = VAL(a$)
NEXT x%
GET 1, 18
DISKNO$ = RIGHT$(a$, 1)
CLOSE 1
  
```

REM Experimenter Status Screen

```

Stscrn:
COLOR 7, 1
CLS
PRINT "
PRINT "
PRINT "
PRINT "
  
```

ON LINE

"
"
"

[illegible]

```

COLOR 7, 1
GOSUB print.box
FOR x% = 1 TO 16
  REM BUILD NUMBER OF SUBS IN CONDITION STRING
  mark$ = ""
  IF SUBCOND$(x%) < 11 THEN numrow% = 1 ELSE IF SUBCOND$(x%) < 21 THEN numrow% = 2 ELSE IF
  SUBCOND$(x%) < 31 THEN numrow% = 3 ELSE IF SUBCOND$(x%) < 41 THEN numrow% = 4
  mark$ = ""
  FOR y% = 1 TO numrow%
    IF y% <> numrow% OR SUBCOND$(x%) MOD 10 = 0 THEN mark$ = "IIIIIIIIII" ELSE mark$ =
    STRING$(SUBCOND$(x%) MOD 10, "I")
    IF SUBCOND$(x%) MOD 10 = 0 THEN mark$ = ""
    IF LEN(mark$) > 5 THEN MID$(mark$, 6, 1) = " ": mark$ = mark$ + "I"
  REM PRINT STRING
  IF x% = 1 OR x% = 2 OR x% = 5 OR x% = 6 THEN BEGROW% = 3

```

```

IF x% = 9 OR x% = 10 OR x% = 14 OR x% = 13 THEN BEGROW% = 15
IF x% = 3 OR x% = 4 OR x% = 7 OR x% = 8 THEN BEGROW% = 8
IF x% = 11 OR x% = 12 OR x% = 15 OR x% = 16 THEN BEGROW% = 20
IF x% = 11 OR x% = 9 OR x% = 1 OR x% = 3 THEN BEGCOL% = 3
IF x% = 2 OR x% = 4 OR x% = 10 OR x% = 12 THEN BEGCOL% = 18
IF x% = 5 OR x% = 7 OR x% = 13 OR x% = 15 THEN BEGCOL% = 33
IF x% = 6 OR x% = 8 OR x% = 14 OR x% = 16 THEN BEGCOL% = 48
LOCATE BEGROW% + (Y% - 1), BEGCOL%
PRINT mark$;
NEXT Y%
PRINT
NEXT x%
TOTCOND% = 0
COLOR 4, 7
LOCATE 10, 64
PRINT "Computer "; DISKNOS
LOCATE 11, 64
PRINT "Subject "; SUBOrder% + 1
LOCATE 13, 66
COLOR 5, 7
PRINT " Cond (1-8) ";
GOSUB getkey
IF VAL(a$) < 1 OR VAL(a$) > 8 THEN
COLOR 7, 1
GOTO Stscrn
END IF
CONDITION% = VAL(a$)
LOCATE 14, 65
COLOR 7, 1
PRINT "1=on1n "
LOCATE 14, 72
COLOR 14, 1
PRINT "2=retro";
GOSUB getkey
IF VAL(a$) < 1 OR VAL(a$) > 2 THEN
COLOR 7, 1

```

```

GOTO Stscrn
END IF
SCALES% = VAL(a$)
COLOR 7, 1
GOSUB Assign.Condition
LOCATE 10, 5
TOTCOND% = SUBSCOND%(CONDITION%)
WB% = CONDITION% + (SCALES% - 1) * 8
COLOR 23, 1
LOCATE (WB% = 1) OR (WB% = 2) OR (WB% = 5) OR (WB% = 6)) * -6 + ((WB% = 3) OR (WB% = 4) OR (WB% = 7) OR (WB% = 8)) * -11 + ((WB% = 9) OR (WB% = 10) OR (WB% = 13) OR (WB% = 14)) * -18 + ((WB% = 11) OR (WB% = 12) OR (WB% = 15) OR (WB% = 16)) * -23, ((WB% = 1) OR (WB% = 3) OR (WB% = 9) OR (WB% = 11)) * -15 + ((WB% = 2) OR (WB% = 4) OR (WB% = 10) OR (WB% = 12)) * -30 + ((WB% = 5) OR (WB% = 7) OR (WB% = 13) OR (WB% = 15)) * -45 + ((WB% = 6) OR (WB% = 8) OR (WB% = 14) OR (WB% = 16)) * -60
COLOR 20, 7
PRINT "I"
COLOR 7, 1
LOCATE 16, 65
COLOR 4, 7
PRINT "(R)un"
LOCATE 17, 65
PRINT "(C)hange"
LOCATE 18, 65
PRINT "(Q)uit"
COLOR 7, 1
3110 GOSUB getkey
IF a$ = "Q" OR a$ = "q" THEN PRINT "Program Ended": END
IF a$ = "C" THEN GOTO Stscrn
IF a$ <> "R" AND a$ <> "r" THEN GOTO 3110

```

```

REM Subject Welcome Screen
SHELL "big.bat"
COLOR 15, 1
CLS

```

```

a$ = STRING$(40, "**")
B1$ = "Welcome to"
B2$ = "the"
B3$ = "Experiment"
B4$ = "Hit any key to start !"
PRINT a$
PRINT : PRINT
PRINT TAB((40 - LEN(B1$)) / 2 + 1); B1$
PRINT TAB((40 - LEN(B2$)) / 2); B2$
PRINT TAB((40 - LEN(B3$)) / 2 + 1); B3$
PRINT : PRINT TAB((40 - LEN(B4$)) / 2 + 1); B4$
LOCATE 12, 1
PRINT a$
GOSUB getkey
SCREEN 1: SCREEN 0: WIDTH 80: COLOR 7, 1: CLS

REM START TIMING EXPERIMENT
BEG.EXP.TIME! = TIMER

REM Print introductory instructions
FOR x% = 1 TO 10
CLS
READ begln%, endln%, sw%
screen.length% = endln% - begln%
LOCATE INT((29 - screen.length%) / 2) - 1, 1
GOSUB printinstr
NEXT x%
DATA 1,10,1,12,20,1,21,30,1,32,44,1,46,58,1,60,69,1,71,75,1,76,80,1
DATA 81,88,1,89,98,1

REM Query Questions
quest: CLS
LOCATE 12, 1
PRINT "Do you have any questions about the task"
PRINT "that you want the experimenter to answer ";
COLOR 14, 1

```

```

PRINT "(Y/N)?"
COLOR 7, 1
GOSUB getkey
IF a$ <> "Y" AND a$ <> "N" THEN GOTO quest ELSE IF a$ = "Y" THEN BEEP:
LOCATE 15, 1:
the experimenter to help you.":
COLOR 7, 1:
PRINT "Wait for
GOSUB nextscreen

REM Start Task
total% = 300
COLOR 7, 1

REM Present Store Descriptions
FOR x% = 1 TO 4
READ begin%, endln%, sw%
screen.length% = endln% - begin%
CLS
LOCATE INT((29 - screen.length%) / 2) - 1, 1
GOSUB printinstr
NEXT x%
DATA 100,107,1,108,122,1,124,137,1,139,150,1

REM REVIEW STORE DESCRIPTIONS
a4: CLS
LOCATE 10, 1
PRINT "You may go back and review any of the store descriptions is you"
PRINT "would like to."
PRINT : PRINT
PRINT "Hit the "; : COLOR 4, 15: PRINT "red A"; : COLOR 7, 1: PRINT " key on the left side of the
keyboard to see Store A again"
PRINT "Hit the "; : COLOR 4, 15: PRINT "red B"; : COLOR 7, 1: PRINT " key on the left side of the
keyboard to see Store B again"
PRINT "Hit the "; : COLOR 4, 15: PRINT "red C"; : COLOR 7, 1: PRINT " key on the left side of the
keyboard to see Store C again"
PRINT "Hit the space bar to go on with the experiment."
a5: GOSUB getkey

```

```

IF a$ = CHR$(97) THEN begln% = 108: endl% = 122: sw% = 1: screen.length% = endl% - begln%: CLS :
LOCATE INT((29 - screen.length%) / 2) - 1, 1: GOSUB printinstr: GOTO a4
IF a$ = CHR$(98) THEN begln% = 124: endl% = 137: sw% = 1: screen.length% = endl% - begln%: CLS :
LOCATE INT((29 - screen.length%) / 2) - 1, 1: GOSUB printinstr: GOTO a4
IF a$ = CHR$(99) THEN begln% = 139: endl% = 150: sw% = 1: screen.length% = endl% - begln%: CLS :
LOCATE INT((29 - screen.length%) / 2) - 1, 1: GOSUB printinstr: GOTO a4
IF a$ <> " " THEN GOTO a5
REM FREE UP STRING SPACE
ERASE instr$

REM Sunk Cost Manipulation
IF snkcost% = 2 THEN GOSUB Sunk.cost.instr

STARTHERE:

REM INITIALIZE TIME ARRAYS WHICH ARE SET ONLY ONCE IN THE MAINLOOP TO 0
FOR x% = 1 TO 10
  FOR Y% = 1 TO 3
    FOR Z% = 1 TO 4
      choicetime!(x%) = 0!
      FEEDTIME!(x%) = 0!
      Surveytime!(x%, Y%, Z%) = 0!
      Surveyresp$(x%, Y%, Z%) = "X"
    NEXT Z%
  NEXT Y%
NEXT x%

REM Main Program Loop
CLS
FOR MAINLOOP% = 1 TO 10

REM SET STORE AVERAGES AND PRINT STORE AVERAGES
AVGCS$ = "15"
IF srccchg% = 1 THEN AVGB$ = "20" ELSE IF PRCHG% = 1 AND MAINLOOP% < 3 THEN AVGB$ = "20" ELSE IF PRCHG%
= 1 AND MAINLOOP% > 2 THEN AVGB$ = "40" ELSE IF PRCHG% = 2 AND MAINLOOP% > 6 THEN AVGB$ = "40" ELSE AVGB$
= "20"

```



```

IF srchcg% = 2 THEN AVGS$ = "40" ELSE IF PRCHG% = 1 AND MAINLOOP% < 3 THEN AVGS$ = "40" ELSE IF PRCHG%
= 1 AND MAINLOOP% > 2 THEN AVGS$ = "20" ELSE IF PRCHG% = 2 AND MAINLOOP% > 6 THEN AVGS$ = "20" ELSE AVGS$
= "40"
    GOSUB print.averages
    CITYNUM% = MAINLOOP%
    COLOR 7, 1
    CLS
    IF PAYINIT% = 1 THEN GOSUB SAILFEE
    GOSUB Survey
    IF PAYINIT% = 1 THEN GOSUB SAILFEE
    GOSUB CHOICE
    CHOICE%(MAINLOOP%) = CHOICE%
    choicetime!(MAINLOOP%) = Elaptime!
    BADCHOICE%(MAINLOOP%) = Badch%
    GOSUB FEEDBACK
    FEEDTIME!(MAINLOOP%) = FTI
    END.PER.TOTAL%(MAINLOOP%) = total%

    IF (((CONDITION% = 1 OR CONDITION% = 5) AND MAINLOOP% = 2) OR ((CONDITION% = 3 OR CONDITION% = 7) AND
MAINLOOP% = 6) THEN GOSUB BRANDA.DOWN ELSE IF ((CONDITION% = 2 OR CONDITION% = 6) AND MAINLOOP% = 2) OR
((CONDITION% = 4 OR CONDITION% = 8)
AND MAINLOOP% = 6) THEN GOSUB BRANDB.UP
    CLS
NEXT MAINLOOP%

start.task:
REM Task Reaction Questionnaire
CLS
LOCATE 10, 1
PRINT "The major portion of the experiment is now completed. We would "
PRINT "now like you to complete a short questionnaire."
GOSUB nextscreen
OPEN "r", 3, "dummy"
FIELD 3, 20 AS lendlj$, 20 AS lendlj$
GOSUB TASK.REACTION.QUESTIONNAIRE
CLOSE 3

```

```

REM      CALCULATE TIME IN EXPERIMENT
END.EXP.TIME! = TIMER - BEG.EXP.TIME!

REM      Say Goodbye
CLS
LOCATE 10, 1
PRINT "We would like to thank you for your participation in the"
PRINT "experiment. The information gained by your participation will be"
PRINT "very useful to us."
PRINT
COLOR 14, 1
PRINT "Since this experiment is ongoing please do not discuss the"
PRINT "experiment with anyone. They might later participate in the"
PRINT "experiment and it is important that subjects not know what to"
PRINT "expect in advance. Also, by telling others about the experiment"
PRINT "you may increase their score and decrease your chances of winning"
PRINT "one of the cash prizes."
PRINT
COLOR 7, 1
PRINT "Thank you again for participating!"
GOSUB nextscreen
GOSUB Smiley
CLS

START.HERE.2:
PRINT "Experimenter -- Enter Name"
A1 = 24
PARM1 = 0
GOSUB GET.INPUT
surname$ = AN$

REM      BUILD DATA MATRIX GOES HERE

SUBJ$ = FNUMSTR$(SUBORDER% + 1, 3)

```

```

SUBJ$ = FNRJUST$(SUBJ$, 3)
CONDITION$ = FNNUMSTR$(CONDITION%, 1)
CONDITION$ = FNRJUST$(CONDITION$, 1)
SCALE$ = FNNUMSTR$(SCALE$, 1)
SCALE$ = FNRJUST$(SCALE$, 1)
FOR x% = 1 TO 35
  B$(x%) = ""
NEXT x%
FOR x% = 1 TO 35
  CARD$ = FNNUMSTR$(x%, 2)
  CARD$ = FNRJUST$(CARD$, 2)
  B$(x%) = FNLJUST$(DISKNOS + SUBJ$ + CONDITION$ + SCALE$ + CARD$, 8)
NEXT x%

REM LINE 1  SUBJECT'S NAME  PERIOD TOTALS 1-10
B$(1) = B$(1) + FNLJUST$(subname$, 24)
FOR x% = 1 TO 10
  B$(1) = B$(1) + FNRJUST$(FNNUMSTR$(END.PER.TOTAL%(x%), 4), 4)
NEXT x%

REM LINE 2  10 CHOICES AND FIRST 7 CHOICE RT'S
FOR x% = 1 TO 10
  B$(2) = B$(2) + FNNUMSTR$(CHOICE%(x%), 1)
NEXT x%
FOR x% = 1 TO 7
  B$(2) = B$(2) + FNTIMEDAT$(choicetime!(x%))
NEXT x%

REM LINE 3  FEEDBACK TIME TRIPS 1-8 AND BADCHOICES TRIPS 1-8
FOR x% = 1 TO 8
  B$(3) = B$(3) + FNTIMEDAT$(FEEDTIME!(x%))
NEXT x%
FOR x% = 1 TO 8
  B$(3) = B$(3) + FNNUMSTR$(BADCHOICE%(x%), 1)
NEXT x%

```

```

REM LINES 4 - 13 EACH LINE CONTAINS SURVEY RT FOR A PER FOR BRANDS A & B
REM BRAND A SURVEY1 SURVEY2 CONF1 CONF2, BRAND B ...
REM PLUS NET SCORE ON THAT TRIP
  FOR x% = 4 TO 13
    FOR Y% = 1 TO 2
      FOR Z% = 1 TO 4
        B$(x%) = B$(x%) + FNTIMEDAT$(Surveytime!((x% - 3, Y%, Z%)))
      NEXT Z%
    NEXT Y%
  NEXT x%
  B$(x%) = B$(x%) + FNRJUST$(FNUMSTR$(NETONTRIP(x% - 3), 3), 3)
  NEXT x%

REM LINES 14 -18 EACH LINE CONTAINS SURVEY RT FOR BRAND C FOR 2 PERIODS
  FOR x% = 14 TO 18
    FOR Y% = 1 TO 2
      FOR Z% = 1 TO 4
        B$(x%) = B$(x%) + FNTIMEDAT$(Surveytime!((x% - 13 - 1) * 2 + Y%, 3, Z%))
      NEXT Z%
    NEXT Y%
  NEXT x%

REM LINE 19 CONTAINS SURVEY DATA FOR PERIODS 1 - 9 FOR BRANDS A & B
REM PER1 BD A S1 S2 C1 C2, BD B ... , PER2 BD A S1 S2 C1 C2 ...
  FOR x% = 1 TO 9
    FOR Y% = 1 TO 2
      FOR Z% = 1 TO 4
        B$(19) = B$(19) + RIGHT$(Surveyresp$(x%, Y%, Z%), 1)
      NEXT Z%
    NEXT Y%
  NEXT x%

REM LINE 20 CONTAINS SURVEY DATA FOR BRAND C FOR ALL 10 PERIODS
REM PLUS PAYINIT FEE PLUS TOTAL.EXP.TIME
  FOR x% = 1 TO 10
    FOR Z% = 1 TO 4
      B$(20) = B$(20) + RIGHT$(Surveyresp$(x%, 3, Z%), 1)
    
```

```

NEXT Z%
NEXT X%
B$(20) = B$(20) + RIGHT$(FNUMSTR$(PAYINIT%, 1), 1) + FNTIMEDAT2$(END.EXP.TIME!)

REM LINE 21 TASK REACTION QUESTIONNAIRE ALL 1 COL
B$(21) = B$(21) + RELB$ + RELC$ + MAJOR$ + CLASS$
FOR X% = 1 TO 37
  B$(21) = B$(21) + RIGHT$(STR$(TRANS$(X%)), 1)
NEXT X%

REM LINE 22 CHOICE TIMES PERIODS 8 - 10,
REM BADCHOICES 9 - 10 AND FEEDTIME 9-10
FOR X% = 8 TO 10
  B$(22) = B$(22) + FNTIMEDAT$(CHOICETIME!(X%))
NEXT X%
FOR X% = 9 TO 10
  B$(22) = B$(22) + FNTIMEDAT$(FEEDTIME!(X%))
NEXT X%
FOR X% = 9 TO 10
  B$(22) = B$(22) + FNUMSTR$(BADCHOICE%(X%), 1)
NEXT X%

REM LINE 23 SURVEY RESP BRANDS A & B PER 10
REM skip 1 space then add TRANS2%( ) array 1-40 1 col
FOR Y% = 1 TO 2
  FOR Z% = 1 TO 4
    B$(23) = B$(23) + RIGHT$(Surveyresp$(10, Y%, Z%), 1)
  NEXT Z%
NEXT Y%
B$(23) = B$(23) + " "
FOR X% = 1 TO 40
  B$(23) = B$(23) + RIGHT$(STR$(TRANS2%(X%)), 1)
NEXT X%

REM EXPERIMENTER'S CHOICE SCREEN AND SUBROUTINES
SD% = 0: DD% = 0

```

Exp.choice.screen:

```
CLS
LOCATE 10, 10
PRINT "Experimenter -- What is your pleasure ?"
LOCATE 12, 10
PRINT "<D>rop this subject's data"
LOCATE 13, 10
PRINT "<S>ave this subject's data"
LOCATE 14, 10
PRINT "<L>ook at this subject's data"
LOCATE 15, 10
PRINT "<R>un another subject - You must drop or save this subject's data first"
LOCATE 16, 10
PRINT "<E>nd program - You must drop or save this subject's data first"
```

CHECK.KEY:

```
GOSUB getkey
IF a$ <> "D" AND a$ <> "d" AND a$ <> "S" AND a$ <> "s" AND a$ <> "L" AND a$ <> "l"
AND a$ <> "r" AND a$ <> "R" AND a$ <> "e" AND a$ <> "E" THEN GOTO CHECK.KEY
IF a$ = "D" OR a$ = "d" THEN GOSUB DROP.DATA ELSE IF a$ = "S" OR a$ = "s" THEN GOSUB SAVE.DATA ELSE
IF a$ = "L" OR a$ = "l" THEN GOSUB DISPLAY.DATA
IF (a$ = "E" OR a$ = "e") AND (SD% = 1 OR DD% = 1) THEN a$ = "Q"; GOTO End.PROGRAM
IF (a$ = "R" OR a$ = "r") AND (SD% = 0 OR DD% = 0) THEN PRINT : PRINT "Are you sure you want to end
the program without saving the data (Y/N) ?"; GOSUB getkey: IF a$ <> "Y" AND a$ <> "y" THEN GOTO
Exp.choice.screen: ELSE a$ = "Q"; GOTO _
End.PROGRAM
IF (a$ = "R" OR a$ = "r") AND (SD% = 1 OR DD% = 1) THEN PRINT : PRINT "Stand By --"; RUN
"ALANDIS9"
IF (a$ = "R" OR a$ = "r") AND SD% = 0 THEN PRINT : PRINT "Are you sure you want to run the program
again without saving the data (Y/N) ?"; GOSUB getkey: IF a$ <> "Y" AND a$ <> "y" THEN GOTO
Exp.choice.screen ELSE FR% = 1: PRINT : PRINT _
"Stand By --"; RUN "ALANDIS9"
GOTO Exp.choice.screen
```

REM Save Data Subroutine

SAVE.DATA:

```
IF SD% = 1 THEN PRINT : PRINT "Data already saved": PRINT : PRINT : GOSUB nextscreen: RETURN
IF DD% = 1 THEN PRINT "You already told me to drop the data": PRINT "Are you sure you want to
save (Y/N) ?": GOSUB getkey: IF a$ <> "Y" AND a$ <> "y" THEN RETURN
```

REM UPDATE SUBJECT NUMBER FILE

```
OPEN "r", 1, "suborder.idx"
FIELD 1, 3 AS a$
SUBORDER% = SUBORDER% + 1
LSET a$ = RIGHT$(STR$(SUBORDER%), 3)
PUT 1, 1

REM - WB% IS SET TO CONDORION%+(SCALES%-1)*8 IN THE MATRIX
REM - DISPLAY AT THE BEGINNING OF THE EXPERIMENT
SUBCOND%(WB%) = SUBCOND%(WB%) + 1
LSET a$ = RIGHT$(STR$(SUBCOND%(WB%)), 3)
PUT 1, WB% + 1: REM - WB% IS SET TO CONDORION%+(SCALES%-1)*8 IN THE MATRIX
REM - DISPLAY AT THE BEGINNING OF THE EXPERIMENT
CLOSE 1
```

REM SAVE DATA MATRIX TO DISK ROUTINE

```
OPEN "r", 1, "b:DICK1" + DISKNOS$ + ".dta", 80
FIELD 1, 80 AS BL$
POINTER% = (SUBORDER% - 1) * 23
FOR x% = 1 TO 23
  LSET BL$ = B$(x%)
  PUT 1, POINTER% + x%
NEXT x%
CLOSE 1
SD% = 1
RETURN
```

DROP.DATA:

```

IF SD% = 1 THEN PRINT : PRINT "Data already saved -- can't drop subject": PRINT : GOSUB
nextscreen: RETURN
CLS
LOCATE 10, 10
PRINT "Are you sure you want to drop this subject's data (Y/N) ?"
GOSUB getkey
IF a$ <> "Y" AND a$ <> "y" THEN LOCATE 12, 10: PRINT "Data not dropped":
GOSUB nextscreen: RETURN
LOCATE 12, 10
PRINT "Subject's data dropped"
PRINT : PRINT : GOSUB nextscreen
DD% = 1
RETURN

```

DISPLAY.DATA:

```

CLS
FOR x% = 1 TO 23
IF LEN(B$(x%)) = 80 THEN
PRINT B$(x%);
ELSE PRINT B$(x%)
END IF
NEXT x%
GOSUB nextscreen
RETURN

```

```

REM End Program ?
End PROGRAM:

```

```

CLS
CLOSE
END

```

```

REM Subroutines start here

print.box:

```



```

COLOR 0, 7
box$(1) = "
box$(2) = "
box$(3) = "
box$(4) = "
box$(5) = "
box$(6) = "
box$(7) = "
box$(8) = "
box$(9) = "
box$(10) = "
box$(11) = "
box$(12) = "
FOR x% = 8 TO 19
LOCATE x%, 63
PRINT box$(x% - 7);
NEXT x%
COLOR 7, 1
RETURN

```

```

getkey:
DEF SEG = 0: POKE (1050), PEEK(1052): DEF SEG
2 a$ = INKEY$: IF a$ = "" THEN GOTO 2 ELSE RETURN

```

```

Getkey2:
a$ = INKEY$: RETURN

```

```

printinstr:
FOR XX% = begln% TO endln%
IF CSRLIN = 24 THEN PRINT instruct$(XX%); ELSE PRINT instruct$(XX%)
NEXT XX%
IF sw% = 1 THEN GOSUB nextscreen' If sw% is set to one ask to continue
RETURN

```

```

nextscreen:
LOCATE 25, 27

```

```

COLOR 14, 1
PRINT "--> Hit any key to go on <--";
COLOR 7, 1
GOSUB getkey
LOCATE 25, 1
PRINT STRING$(80, " ");
RETURN

```

```

Waiter:
FOR zz% = 1 TO ZZ1%: NEXT zz%: RETURN

```

```

wait1:
Timer1% = VAL(RIGHT$(TIMES$, 1))
W1: GOSUB Checktime
IF timeck% <> 1 THEN GOTO W1
RETURN

```

```

WAIT2:
FOR ZZ2% = 1 TO ZZ1!
NEXT ZZ2!
RETURN

```

```

Update:
total% = total% - Decrease%
RETURN

```

```

Printtot:
linex% = CSRLIN
Column% = POS(0)
COLOR 15, 1
LOCATE 25, 32: PRINT "Total Points "; total%;
COLOR 7, 1
LOCATE linex%, Column%
RETURN

```

```

Checktime:
  Timer2% = VAL(RIGHT$(TIMES, 1))
  IF ABS(Timer2% - Timer1%) >= DELAY% THEN timeck% = 1:
    Timer1% = Timer2% ELSE timeck%
    = 0
  RETURN

Sunk.cost.instr:
  CLS
  COLOR 4, 15
  LOCATE CSRLIN, 32: PRINT " Store Averages "
  COLOR 4, 15
  LOCATE 2, 17
  PRINT "      Store A      Store B      Store C      "
  LOCATE 3, 17
  PRINT " "; STRINGS(41, "-"); CHR$(191)
  LOCATE 4, 17
  PRINT " |      40      20      15      | "
  LOCATE 5, 17
  PRINT " "; STRINGS(41, "-"); " "
  COLOR 7, 1
  PRINT
  LOCATE CSRLIN, 28
  PRINT "Store A Initiation Fee"
  COLOR 7, 1
  PRINT
  PRINT "In order to shop at Store A, an initiation fee of 150 points is required."
  PRINT "Regardless of whether initiation fees are a good deal in your particular local"
  PRINT "market, stores that charge an initiation fee in the market that this shopping"
  PRINT "experiment takes place in do so in order to bring you higher levels of the"
  PRINT "attributes than would otherwise be possible. As you can see, Store A"
  PRINT "typically provides an average of 40 points per trip. This beats its nearest;"
  PRINT "competitor (Store B) by an average of 20 points ON EACH TRIP. Over the;"
  PRINT "course of this ten period game, that is a difference of ";
  COLOR 4, 15
  PRINT " 200 points. ";

```

```

COLOR 7, 1
PRINT " If you"
PRINT "pay the fee and subtract the initial 150 point investment, that still leaves"
PRINT "you with 50 extra points as profit."
COLOR 7, 1
PRINT
PRINT "Paying the fee allows you the freedom to choose from any of the three stores on"
PRINT "each of the TEN store trips. If you do not pay the initiation fee now you will"
COLOR 4, 15
PRINT "
PRINT "
PRINT " NOT BE ALLOWED TO PAY IT LATER AND YOU WILL NOT BE ALLOWED
TO CHOOSE STORE A ON ANY OF THE TRIPS. "
COLOR 7, 1
GOSUB nextscreen
CLS
COLOR 4, 15
PRINT
PRINT
LOCATE CSRLIN, 29
PRINT "Pay Fee ?"
COLOR 14, 1
PRINT
PRINT "Do you wish to pay the initiation fee so that you can rent "
PRINT "movies from Store A ";
COLOR 14, 1:
PRINT "(Y/N)?"
COLOR 7, 1
3 GOSUB getkey
IF a$ <> "Y" AND a$ = "N" THEN GOTO 3 ELSE IF a$ = "Y" THEN PAYINIT% = 1: total% = total% - 100
ELSE PAYINIT% = 0
CLS
RETURN

Cclearline:
LOCATE lline%, Column%
FOR zz% = 1 TO numlines%
PRINT STRING$(80 - (Column% - 1), " ");

```

```

NEXT zz%
LOCATE 11nex%, Column%
RETURN

```

```

Checkstick:

```

```

Stickout% = STRIG(0) + 10 * STRIG(4)
Stickout% = ABS(Stickout%)
RETURN

```

```

Assign.Condition:

```

```

IF CONDITION% < 3 OR CONDITION% = 5 OR CONDITION% = 6 THEN PRCHG% = 1 ELSE PRCHG% = 2
IF CONDITION% = 1 OR CONDITION% = 3 OR CONDITION% = 5 OR CONDITION% = 7 THEN srcchg% = 1 ELSE srcchg%
= 2
IF CONDITION% < 5 THEN snkcost% = 1 ELSE snkcost% = 2
RETURN

```

```

FEEDBACK:

```

```

Starttime! = TIMER

```

```

COLOR 2, 1

```

```

CLS

```

```

LOCATE 1, 33

```

```

COLOR 4, 15

```

```

PRINT "

```

```

LOCATE 2, 33

```

```

PRINT "Feedback Screen "

```

```

LOCATE 3, 33

```

```

PRINT "

```

```

LOCATE 5, 30

```

```

COLOR 14, 1

```

```

PRINT "Points Earned On Trip"; MAINLOOP%

```

```

COLOR 4, 15

```

```

LOCATE 7, 23

```

```

PRINT "Points awarded for Store "; CHR$(67 - (3 - CHOICE%(MAINLOOP%))) " ";

```

```

PRINT USING "###"; STIMVAL%(CONDITION%, MAINLOOP%, CHOICE%);

```

```

PRINT "

```

```

NETONTRIP%(MAINLOOP%) = STIMVAL%(CONDITION%, MAINLOOP%, CHOICE%)

```

```

total% = total% + NETONTRIP%(MAINLOOP%)
LOCATE 14, 5
COLOR 14, 1
PRINT "Last Period Store Scores"
COLOR 4, 15
LOCATE 16, 10
PRINT " Store A ";
PRINT USING "###"; STIMVAL%(CONDITION%, MAINLOOP%, 1);
PRINT " "
LOCATE 17, 10
PRINT " Store B ";
PRINT USING "###"; STIMVAL%(CONDITION%, MAINLOOP%, 2);
PRINT " "
LOCATE 18, 10
PRINT " Store C ";
PRINT USING "###"; STIMVAL%(CONDITION%, MAINLOOP%, 3);
PRINT " "
LOCATE 13, 40
COLOR 14, 1
PRINT "Total number of points each brand has"
LOCATE 14, 40
PRINT "offered so far in the experiment"
LOCATE 16, 48
COLOR 4, 15
PRINT " Store A ";
BRAND% = 1
GOSUB Sumup
PRINT USING "###"; sum%;
PRINT " "
LOCATE 17, 48
PRINT " Store B ";
BRAND% = 2
GOSUB Sumup
PRINT USING "###"; sum%;
PRINT " "
LOCATE 18, 48

```

```

PRINT " Store C ";
BRAND% = 3
GOSUB Sumup
PRINT USING "####"; sum%;
PRINT " "
LOCATE 22, 1
COLOR 14, 1
PRINT fnctr$(" YOUR TOTAL SCORE " + STR$(total%) + " ")
COLOR 7, 1
GOSUB nextscreen
FT! = TIMER - Starttime!
RETURN

Sumup:
sum% = 0
FOR zzz% = 1 TO MAINLOOP%
    sum% = sum% + STIMVAL%(CONDITION%, zzz%, BRAND%)
NEXT zzz%
RETURN

Survey:
CLS
PRINT fnctr$("Survey")
PRINT
PRINT fnctr$("Please respond to the following set of questions ")
PRINT fnctr$("using the keys (1-7) at the top of the keyboard.")
PRINT
PRINT fnctr$("Please respond as quickly as possible without sacrificing" + " accuracy.")
GOSUB nextscreen
respscale$ = "1 2 3 4 5 6 7"
CLS
FOR zz% = 1 TO 3
    GOSUB PRINT.TRIP.NUM
LOCATE 10, 1
PRINT fnctr$("How much do you like or dislike Store " + MID$("ABC", zz%, 1) + " IN GENERAL ?")
PRINT

```

```

PRINT fnctr$("Dislike " + respscale$ + " Like")
GOSUB scale7
Surveyresp$(MAINLOOP%, zz%, 1) = a$
Surveytime!(MAINLOOP%, zz%, 1) = Elaptime!
GOSUB Askconf
Surveyresp$(MAINLOOP%, zz%, 3) = a$
Surveytime!(MAINLOOP%, zz%, 3) = Elaptime!
GOSUB PRINT.TRIP.NUM
LOCATE 10, 1
PRINT fnctr$("In general, how good or bad of a store do you think Store " + MID$("ABC", zz%, 1) + "
is ?")
PRINT
PRINT fnctr$("Bad " + respscale$ + " Good")
GOSUB scale7
Surveyresp$(MAINLOOP%, zz%, 2) = a$
Surveytime!(MAINLOOP%, zz%, 2) = Elaptime!
GOSUB Askconf
Surveyresp$(MAINLOOP%, zz%, 4) = a$
Surveytime!(MAINLOOP%, zz%, 4) = Elaptime!
NEXT zz%
XYZ% = MAINLOOP% - INT((MAINLOOP% - 1) / 2)
IF SCALES% = 1 AND INT(MAINLOOP% / 2) * 2 <> MAINLOOP% THEN GOSUB SCALEQUEST
RETURN

CHOICE:
  Starttime! = TIMER
  Badch% = 0
  c2: COLOR 7, 1
  CLS
  PRINT TAB(29); "Make A Choice for Period"; MAINLOOP%
  LOCATE 10, 1
  IF PAYINIT% = 1 OR CONDITION% < 5 THEN
    PRINT fnctr$("Indicate your choice of Store A, B or C using the ");
  ELSE
    PRINT fnctr$("Indicate your choice of Store B or C using the ");
  END IF

```



```

COLOR 4, 15
PRINT "RED"
COLOR 7, 1
PRINT fnctr$("keys on the left side of the keyboard")
COLOR 4, 15
IF PAYINIT% = 1 OR CONDITION% < 5 THEN
LOCATE 13, 5
PRINT "A"
END IF
LOCATE 15, 5
PRINT "B"
LOCATE 17, 5
PRINT "C"
IF PAYINIT% = 1 OR CONDITION% < 5 THEN
WHILE a$ <> CHR$(98) AND a$ <> CHR$(97) AND a$ <> CHR$(99)
GOSUB getkey
WEND
IF a$ = CHR$(97) THEN
CHOICE% = 1
ELSEIF a$ = CHR$(98) THEN
CHOICE% = 2
ELSEIF a$ = CHR$(99) THEN
CHOICE% = 3
END IF
END IF
IF NOT (PAYINIT% = 1 OR CONDITION% < 5) THEN
WHILE a$ <> CHR$(98) AND a$ <> CHR$(99)
GOSUB getkey
WEND
IF a$ = CHR$(98) THEN
CHOICE% = 2
ELSEIF a$ = CHR$(99) THEN
CHOICE% = 3
END IF
END IF

```

```

COLOR 7, 1
CLS
LOCATE 10, 1
PRINT fnctr$("You choose Store " + CHR$(ASC(a$) - 32))
LOCATE 12, 23
PRINT "If this is correct hit the ";
COLOR 4, 15
PRINT "RED OK";
COLOR 7, 1
PRINT " key.)"
LOCATE 14, 23
PRINT "If this is a mistake hit the ";
COLOR 4, 15
PRINT "RED X";
COLOR 7, 1
PRINT " key."
COLOR 4, 15
LOCATE 13, 5
PRINT "A"
LOCATE 15, 5
PRINT "B"
LOCATE 17, 5
PRINT "C"
LOCATE 22, 5
COLOR 4, 15
PRINT "OK"
LOCATE 22, 9
PRINT "X"
POS1% = 11 + (2 * CHOICE%): POS2% = 10
LOCATE POS1%, POS2%
COLOR 20, 15
PRINT "----"
WHILE a$ <> CHR$(121) AND a$ <> CHR$(122)
  GOSUB Getkey2
WEND
IF a$ = CHR$(122) THEN Badkey% = 1: Badch% = Badch% + 1: ELSE Badkey% = 0

```

```

IF Badkey% = 1 THEN GOTO c2
Elaptime! = TIMER - Starttime!
COLOR 7, 1
RETURN

scale7:
  Starttime! = TIMER
again: GOSUB getkey
  IF VAL(a$) < 1 OR VAL(a$) > 7 THEN GOTO again
  Elaptime! = TIMER - Starttime!
CLS
RETURN

Askconf:
GOSUB PRINT.TRIP.NUM
LOCATE 10, 1
PRINT fnctr$("How confident are you about the answer you just gave ?")
PRINT
PRINT fnctr$("Not Confident " + respscale$ + " Very Confident")
GOSUB scale7
RETURN

Smiley:
RETURN
CLS : KEY OFF
PI = 3.141593
SCREEN 1
COLOR 0, 1
CIRCLE (160, 52), 130, 2
CIRCLE (120, 50), 10, 1
CIRCLE (200, 50), 10, 1
CIRCLE (120, 50), 30, , , 5 / 18
CIRCLE (200, 50), 30, , , 5 / 18
LINE (100, 125)-(220, 125), 2
CIRCLE (160, 52), 50, , 1.4 * PI, -1.6 * PI
DELAY% = 1

```

```

GOSUB wait1
GOSUB 200
CIRCLE (160, 0), 150, 2, 1.3 * PI, 1.7 * PI
LOCATE 25, 1
PRINT "      Thanks Again, Good Bye";
WHILE a$ <> CHR$(27): GOSUB getkey: WEND
GOTO 300
200 LOCATE 25, 1
LINE (100, 125)-(220, 125), 0
RETURN
300 REM Reset Screen
SCREEN 0
WIDTH 80
COLOR 7, 1
RETURN

```

TASK-REACTION.QUESTIONNAIRE:

```

MAJOR$ = STRING$(20, " ")
CLASS$ = STRING$(3, " ")
min% = 1: max% = 7
scale$ = "1 2 3 4 5 6 7"

```

```

REM ASK SCALES ONLY IF IN THE RETRO CONDITION

```

```

IF SCALE% = 2 THEN

```

```

CLS

```

```

PRINT "The following set of questions concern the way you felt at the beginning of"

```

```

PRINT "the experiment"

```

```

GOSUB nextscreen

```

```

CLS

```

```

PRINT "Think back to the beginning of the experiment (about the time you"

```

```

PRINT "made your first trip). Please indicate the extent to which you agree"

```

```

PRINT "or disagree with the following statements about how you felt at the"

```

```

COLOR 4, 15

```

```

PRINT "beginning of the experiment."

```

```

COLOR 7, 1

```

```

PRINT

```

```

PRINT "I felt committed to renting tapes from Store A."
PRINT
PRINT "Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%(1) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I did "; : COLOR 4, 7: PRINT "NOT"; : COLOR 7, 1: PRINT " feel constrained to renting tapes from
Store A on a regular basis."
PRINT
PRINT "Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%(2) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I feel that I was (and probably would be) a steady customer of Store A."
PRINT
PRINT "Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%(3) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "Store A had my loyalty."
PRINT
PRINT "Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%(4) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information had been available about how each store would score on each
PRINT "particular trip, then I feel that it would have been important to purchase"

```

```

PRINT "a lot of information about the various stores before making a selection."
PRINT "
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANSZ%(5) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information had been for sale about how each store would score on each"
PRINT "particular trip, then I would "; : COLOR 4, 7: PRINT "NOT"; : PRINT " have been"
PRINT "willing to choose a store without"
PRINT "first purchasing a lot of information about what the stores would score"
PRINT "on each trip."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANSZ%(6) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information were for sale and Store A were to have dropped its average"
PRINT "number of points by 10, it would have been necessary to purchase a lot of"
PRINT "information to make a 'good choice'."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANSZ%(7) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I would have been willing to give up 10 points to see in advance what the"
PRINT "exact scores would have been for the three stores on the upcoming trip."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans

```

```

TRANS2%(8) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
CLS
PRINT "The following set of question refer to how you felt when ";
IF srcchg% = 1 THEN PRINT "Store A lowered" ELSE PRINT "Store B raised"
PRINT "its score."
GOSUB nextscreen
IF PRCHG% = 2 THEN XYZ% = 5 ELSE XYZ% = 3
CLS
PRINT "Think back to the time in the experiment when ";
IF srcchg% = 1 THEN PRINT "Store A lowered "; ELSE PRINT "Store B raised ";
PRINT "its score."
PRINT "Please indicate the extent to which you agree or disagree with the following"
PRINT "statements about the way you felt ";
COLOR 4, 15
PRINT " at the time when";
IF srcchg% = 1 THEN PRINT " Store A lowered"; ELSE PRINT " Store B raised";
PRINT "its score."
COLOR 7, 1
PRINT
PRINT
PRINT "I felt committed to renting tapes from Store A."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 1) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I did "; : COLOR 4, 7: PRINT "NOT"; : COLOR 7, 1: PRINT " feel constrained to renting tapes from
Store A on a regular basis."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 2) = a%

```

```

linex% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I feel that I was (and probably would be) a steady customer of Store A."
PRINT
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 3) = a%
linex% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "Store A had my loyalty."
PRINT
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 4) = a%
linex% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information had been available about how each store would score on each"
PRINT "particular trip, then I feel that it would have been important to purchase"
PRINT "a lot of information about the various stores before making a selection."
PRINT
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 5) = a%
linex% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information had been for sale about how each store would score on each"
PRINT "particular trip, then I would "; : COLOR 4, 7: PRINT "NOT"; : COLOR 7, 1: PRINT " have been
willing to choose a store without"
PRINT "first purchasing a lot of information about what the stores would score"
PRINT "on each trip."
PRINT
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7

```



```

GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 6) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information were for sale and Store A were to have dropped its average"
PRINT "number of points by 10, it would have been necessary to purchase a lot of"
PRINT "information to make a 'good choice'."
PRINT
PRINT "      Disagree  1  2  3  4  5  6  7  Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 7) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I would have been willing to give up 10 points to see in advance what the"
PRINT "exact scores would have been for the three stores on the upcoming trip."
PRINT
PRINT "      Disagree  1  2  3  4  5  6  7  Agree"
min% = 1: max% = 7
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 8) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
END IF: REM END RETRO ONLY QUESTIONS

REM BEGIN COMMON TASK REACTION QUESTIONS
CLS
PRINT "The following set of questions are concerned with how you would feel if the"
PRINT "experiment were to continue on for another few periods."
GOSUB nextscreen
CLS
PRINT "Please indicate the extent to which you agree or disagree "
PRINT "with the following statements about how you would feel if"
PRINT "the experiment were to ";
COLOR 4, 15
PRINT "go on for another few periods."
COLOR 7, 1

```

```

PRINT
PRINT "I would feel committed to renting tapes from Store A."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS$(30) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I would "; COLOR 4, 7: PRINT "NOT"; : COLOR 7, 1: PRINT " feel constrained to renting tapes from
Store A on a regular basis."

PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS$(31) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I would probably be a steady customer of Store A."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS$(32) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "Store A would have my loyalty."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS$(33) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT

```

```

PRINT "If information was available about how each store would score on each"
PRINT "particular trip, then I feel that it would be important to purchase"
PRINT "a lot of information about the various stores before making a selection."
PRINT "
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS$(34) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information was for sale about how each store would score on each"
PRINT "particular trip, then I would "; : COLOR 4, 7: PRINT "NOT"; : COLOR 7, 1: PRINT " be willing to"
PRINT "choose a store without"
PRINT "first purchasing a lot of information about what the stores would score"
PRINT "on each trip."
PRINT "
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS$(35) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information was for sale and Store A dropped its average"
PRINT "number of points by 10, it would be necessary to purchase a lot of"
PRINT "information to make a 'good choice'."
PRINT "
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS$(36) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I would be willing to give up 10 points to see in advance what the"
PRINT "exact scores would be for the three stores on the upcoming trip."
PRINT "
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"

```

```

min% = 1: max% = 7
GOSUB getans
TRANS%(37) = a%
line% = 6: Column% = 1: numlines% = 7: GOSUB Clearline

CLS
PRINT "The following set of questions refer to how you feel about the way you were"
PRINT "treated by Store A during the experiment."
GOSUB nextscreen

CLS
LOCATE 10, 1
PRINT "At this point in time, I feel that Store A treated me unfairly."
PRINT "
PRINT "      Disagree  1  2  3  4  5  6  7  Agree"
min% = 1: max% = 7
GOSUB getans
TRANS%(25) = a%
CLS
LOCATE 10, 1
PRINT "At this point in time, I feel that Store A treated me justly."
PRINT "
PRINT "      Disagree  1  2  3  4  5  6  7  Agree"
min% = 1: max% = 7
GOSUB getans
TRANS%(26) = a%
CLS
IF PAVINIT% = 1 THEN
  LOCATE 10, 1
  PRINT "At this point in time, I feel that the initiation fee I paid to join Store A"
  PRINT "was a good investment."
  PRINT "
  PRINT "      Disagree  1  2  3  4  5  6  7  Agree"
  min% = 1: max% = 7
  GOSUB getans
  TRANS%(27) = a%
  CLS

```

```

LOCATE 10, 1
PRINT "I am happy I paid the initiation fee to join Store A."
PRINT
PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB getans
TRANS%(28) = a%
END IF
CLS
IF snkcost% = 2 THEN
  LOCATE 10, 1
  PRINT "At this point in time, I feel that Store A provided sufficient value to warrant"
  PRINT "paying the 100 point initiation fee."
  PRINT
  PRINT "      Disagree 1 2 3 4 5 6 7 Agree"
  min% = 1: max% = 7
  GOSUB getans
  TRANS%(29) = a%
END IF

constsum:
tryagain% = 0
CLS
LOCATE 10, 1
PRINT "Using a total of 100 points. Assign the points to the three stores (A,B,and C)"
PRINT "in proportion to your liking for the three stores. Enter the number of points"
PRINT "you wish to assign next to each brand then hit the return key ^["
PRINT "To start over enter 999 for any store."
start.consum:
lnex% = 15: numlines% = 6: Column% = 1: GOSUB Clearline
LOCATE 15, 1
PRINT "Store A"
PRINT "Store B"
PRINT "Store C"
LOCATE 15, 9
PARM1 = 1: A1 = 3

```

```

GOSUB GET.INPUT
IF AN$ = "999" THEN GOTO start.consum
stval1% = VAL(AN$)
LOCATE 16, 9
GOSUB GET.INPUT
IF AN$ = "999" THEN GOTO start.consum
stval2% = VAL(AN$)
LOCATE 17, 9
GOSUB GET.INPUT
IF AN$ = "999" THEN GOTO start.consum
stval3% = VAL(AN$)
IF stval1% + stval2% + stval3% <= 100 THEN
  LOCATE 20, 1
  PRINT "The three numbers you entered add up to"; stval1% + stval2% + stval3%
  PRINT "They should add up to 100. Try Again"
  tryagain% = 1
  GOSUB nextscreen
END IF
IF tryagain% = 1 THEN GOTO constsum
REL$ = FNRJUST$(RIGHT$(STR$(stval1%), 3), 3)
REL$ = FNRJUST$(RIGHT$(STR$(stval2%), 3), 3)
REL$ = FNRJUST$(RIGHT$(STR$(stval3%), 3), 3)
CLS
LOCATE 10, 1
PRINT "During the first several periods of the shopping game, how much"
PRINT "attention did you pay to the information (that was presented on the "
PRINT "feedback screen) about the payoffs each store provided?"
max% = 7
lend1$ = "Very": lend2$ = "little"
lend1$ = "": lend2$ = "A lot"
GOSUB printscale
GOSUB getans
TRANS%(1) = a%
CLS
LOCATE 10, 1

```

```

PRINT "During the course of the experiment, how hard did you try to get the"
PRINT "maximum amount of points possible?"
lend1$ = "Not hard"; lend2$ = "at all"
rend1$ = "Very"; rend2$ = "hard"
GOSUB printscale
GOSUB getans
TRANS$(2) = a%

CLS
LOCATE 10, 1

PRINT "During the course of the experiment, did you tend to try to get the"
PRINT "most points possible or did you just try to 'get through' the task?"
lend1$ = "Just get"; lend2$ = "through"
rend1$ = "Tried to score the"; rend2$ = "most points possible"
GOSUB printscale
GOSUB getans
TRANS$(3) = a%

CLS
LOCATE 1, 1
PRINT "Please rate the extent to which you felt each of the following"
PRINT "situations that you encountered in the experiment were realistic or "
PRINT "unrealistic."
PRINT
PRINT "Making decisions based on information seen on a computer screen."
lend1$ = "Very"; lend2$ = "Unrealistic"
rend1$ = "Very"; rend2$ = "Realistic"
GOSUB printscale
GOSUB getans
TRANS$(4) = a%
linex% = 5: Column% = 1: numlines% = 5: GOSUB Clearline

PRINT
PRINT "Renting video tapes"
GOSUB printscale

```

```

GOSUB getans
TRANS%(5) = a%
l1next% = 5: Column% = 1: numlines% = 5: GOSUB Clearline

PRINT "Being in a purchase situation where you don't have all the information"
PRINT "available about certain products."
GOSUB printscale
GOSUB getans
TRANS%(6) = a%
l1next% = 5: Column% = 1: numlines% = 5: GOSUB Clearline

TRANS%(7) = 0: REM NO QUESTION HERE

PRINT "Being in a situation in which a store doesn't always provide the same"
PRINT "amount of satisfaction on different occasions."
GOSUB printscale
GOSUB getans
TRANS%(8) = a%
l1next% = 5: Column% = 1: numlines% = 6: GOSUB Clearline

IF snkcost% = 2 THEN
  PRINT "Being in a situation where some type of cost or initiation fee is"
  PRINT "required to shop at a particular store."
  GOSUB printscale
  GOSUB getans
  TRANS%(9) = a%
END IF

CLS
LOCATE 10, 1
PRINT "How realistic were the attributes used, (i.e., How realistic are number"
PRINT "of movies, number of top 20 movies, and waiting time as attributes of"
PRINT "video movie renting?"
GOSUB printscale
GOSUB getans
TRANS%(10) = a%

```



```
CLS
LOCATE 10, 1
PRINT "How realistic is it that these attributes might vary from time to time"
PRINT "within a given store?"
GOSUB printscale
GOSUB getans
TRANS%(11) = a%
```

```
CLS
LOCATE 10, 1
PRINT "Once the experiment was explained, how well would you say that you"
PRINT "understood the task?"
lend1$ = "Not": lend2$ = "at all"
rend1$ = "Very": rend2$ = "well"
GOSUB printscale
GOSUB getans
TRANS%(12) = a%
```

```
CLS
LOCATE 10, 1
PRINT "How difficult did you find the task to be?"
lend1$ = "Very": lend2$ = "difficult"
rend1$ = "Very": rend2$ = "easy"
GOSUB printscale
GOSUB getans
TRANS%(13) = a%
```

```
CLS
PRINT "Finally, we would like some personal information about you for"
PRINT "classification purposes."
LOCATE 10, 1
PRINT "Do you own a VCR?"
PRINT
PRINT "1. YES"
PRINT "2. No"
```

```
max% = 2
GOSUB getans
TRANS%(14) = a%
```

```
CLS
LOCATE 10, 1
PRINT "Do you ever rent video movies?"
PRINT
PRINT "1. Yes"
PRINT "2. No"
max% = 2
GOSUB getans
TRANS%(15) = a%
```

```
IF TRANS%(15) = 1 THEN
  CLS
  LOCATE 10, 1
  PRINT "On average, how often do you rent video movies ?"
  PRINT ""
  PRINT "1. Less than once a month"
  PRINT "2. One or two times a month"
  PRINT "3. Three or four times a month"
  PRINT "4. Five or six times a month"
  PRINT "5. More than 6 times a month:"
  max% = 5
  GOSUB getans
  TRANS%(16) = a%
END IF
```

```
CLS
LOCATE 10, 1
PRINT "What is your sex ?"
PRINT
PRINT "1. Male"
PRINT "2. Female"
max% = 2
```

```

GOSUB getans
TRANS$(17) = a%

CLS
LOCATE 10, 1
PRINT "Are you a student ?"
PRINT "1. Yes"
PRINT "2. No"
max% = 2
GOSUB getans
TRANS$(18) = a%

IF TRANS$(18) = 1 THEN
  CLS
  LOCATE 10, 1
  PRINT "What is your major ?"
  PRINT "Type in your major and then hit the return key on your right (^[ )."
  PRINT
  A1 = 20
  PARM1 = 0
  GOSUB GET.INPUT
  MAJOR$ = FNLJUST$(ANS, 20)
  CLS
  LOCATE 10, 1
  PRINT "What is your classification (e.g., 3BA, 2UF, etc.) ?"
  PRINT "Type in your classification and then hit the return key (^[ )."
  PRINT
  PARM1 = 0
  A1 = 3
  GOSUB GET.INPUT
  CLASS$ = FNRJUST$(ANS, 3)
  END IF

CLS
LOCATE 10, 1

```

```

PRINT "Which age group do you fall into ?"
PRINT
PRINT "1. Under 17"
PRINT "2. 17-20"
PRINT "3. 21-24"
PRINT "4. 25-30"
PRINT "5. 31-40"
PRINT "6. 41-50"
PRINT "7. 51-60"
PRINT "8. 61-70"
PRINT "9. Over 70"
max% = 9
GOSUB getans
TRANS$(19) = a%

```

```

CLS
LOCATE 10, 1
PRINT "Occupation (if you work)"
PRINT
PRINT "1. Dont Work"
PRINT "2. Professional"
PRINT "3. Clerical"
PRINT "4. Sales"
PRINT "5. Management"
PRINT "6. Housewife"
PRINT "7. Other"
max% = 7
min% = 1
GOSUB getans
TRANS$(20) = a%

```

```

CLS
LOCATE 10, 1
PRINT "What is the highest level of formal education that you have completed?"
PRINT "1. No high school degree"

```

```

PRINT "2. Graduated high school"
PRINT "3. Less than 2 years of college"
PRINT "4. More than 2 years of college but no bachelor degree"
PRINT "5. Bachelor Degree"
PRINT "6. Some graduate school but no graduate degree"
PRINT "7. Graduate degree"
min% = 1
max% = 8
GOSUB getas
TRANS%(21) = a%

CLS
LOCATE 10, 1
PRINT "Which category does your personal yearly annual income level fall into?"
PRINT
PRINT "1. Less than $10,000"
PRINT "2. $10,001 - $15,000"
PRINT "3. $15,001 - $20,000"
PRINT "4. $20,001 - $30,000"
PRINT "5. $30,001 - $40,000"
PRINT "6. $40,001 - $50,000"
PRINT "7. $50,001 - $60,000"
PRINT "8. $60,001 - $70,000"
PRINT "0. NO RESPONSE"
min% = 0
max% = 8
GOSUB getans
min% = 1
TRANS%(22) = a%

CLS
LOCATE 10, 1
PRINT "Are you expecting to receive class credit for participating in this"
PRINT "experiment?"
PRINT ""
PRINT "1. Yes"

```

```

PRINT "2. No"
max% = 2
GOSUB getans
TRANS$(23) = a%

CLS
LOCATE 10, 1
PRINT "How sufficient do you think the cash prizes offered were at encouraging"
PRINT "you to do the best you could in the experiment ?"
PRINT ""
lend1$ = "Not sufficient": lend2$ = "at all"
rend1$ = "Quite": rend2$ = "sufficient"
GOSUB printscale
max% = 7
GOSUB getans
TRANS$(24) = a%
RETURN

printscale:
PRINT : PRINT
RSET lend1$ = lend1$
RSET lend2$ = lend2$
PRINT lend1$ + " " + scale$ + " " + rend1$
PRINT lend2$ + " " + scale$ + " " + rend2$
RETURN

getans:
a% = 0
GOSUB getkey
IF ASC(a$) < 48 + min% OR ASC(a$) > 48 + max% THEN GOTO getans
a% = VAL(a$)
RETURN

BRANDA.DOWN:
COLOR 4, 15

```

```

CLS
LOCATE 6, 1
LOCATE 6, FNSTRCTR%("Announcement From Store A")
PRINT "Announcement From Store A"
LOCATE 8, 5
PRINT "Store A is sad to announce that due to a change in the government"
LOCATE 9, 5
PRINT "regulations concerning relationships with Japanese distributors of "
LOCATE CSRLIN, 5
PRINT "video tapes, Store A's costs have increased. As a result, "
LOCATE CSRLIN, 5
PRINT "since we did not want to raise our prices, beginning next period"
LOCATE CSRLIN, 5
PRINT "Store A will be forced to reduce its average level of points from 40"
LOCATE CSRLIN, 5
PRINT "to 20. There will still be variability in the scores for Store A"
LOCATE CSRLIN, 5
PRINT "from trip to trip but the average will now be 20 instead of 40."
LOCATE CSRLIN, 5
PRINT "Store A is truly sorry about this unforeseen circumstance and hopes that"
LOCATE CSRLIN, 5
PRINT "our loyal customers stay with us."
COLOR 7, 1
GOSUB nextscreen
CLS
PRINT
PRINT "NOTE FROM THE EXPERIMENT ADMINISTRATOR:"
PRINT
LOCATE CSRLIN, 5
PRINT "Since Store A is the only store which deals with Japanese"
LOCATE CSRLIN, 5
PRINT "distributors, you can expect that all the store averages will remain "
LOCATE CSRLIN, 5
PRINT "as they now are for the remainder of the game."
GOSUB nextscreen
COLOR 7, 1

```

```

RETURN

BRANDB.UP:
COLOR 4, 15
CLS
LOCATE 6, 1
LOCATE 6, FNSTRCTR%("Announcement From Store B")
PRINT "Announcement From Store B"
LOCATE 8, 5
PRINT "Store B is happy to announce that due to a change in the government"
LOCATE CSRLIN, 5
PRINT "regulations concerning relationships with Japanese distributors of "
LOCATE CSRLIN, 5
PRINT "video tapes, Store B's costs have been reduced. As a result, beginning"
LOCATE CSRLIN, 5
PRINT "next period, Store B intends to raise its average level of points from"
LOCATE CSRLIN, 5
PRINT "20 to 40. There will still be variability in the scores for Store B"
LOCATE CSRLIN, 5
PRINT "from trip to trip but the average will now be 40 instead of 20."
COLOR 7, 1
GOSUB nextscreen
CLS
PRINT
PRINT "NOTE FROM THE EXPERIMENT ADMINISTRATOR:"
PRINT
LOCATE CSRLIN, 5
PRINT "Since Store B is the only store which deals with Japanese"
LOCATE CSRLIN, 5
PRINT "distributors, you can expect that all the store averages will remain "
LOCATE CSRLIN, 5
PRINT "as they now are for the remainder of the game."
GOSUB nextscreen
COLOR 7, 1
RETURN

```



```

GET INPUT:
60000 REM INPUT-BAS - A Basic Input Subroutine Written by Lewis Rosenfelder
60001 REM Modified for use on an IBM PC by Alan Dick
60002 REM August, 1985
60003 REM
60004 ON PARM1 + 1 GOSUB 60006, 60017, 60004: RETURN
60005 PRINT "reset parml": STOP
60006 AN$ = "": a = 0: GOSUB 60016: LOCATE LN, COL: PRINT STRING$(A1, 95)
60007 LOCATE 20, 1: IF a = A1 THEN GOTO 60010 ELSE LOCATE LN, COL + a: PRINT CHR$(95);
60008 a$ = INKEY$: IF a$ = " " THEN 60008 ELSE IF INSTR("
!#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz", a$) THEN LOCATE LN,
COL + a: PRINT a$: AN$ = AN$ + a$: a = a + 1: GOTO 60007
60009 ON INSTR(CHR$(8) + CHR$(31) + CHR$(13) + CHR$(91), a$) GOTO 60011, 60006, 60014, 60013: GOTO 60007
60010 a$ = INKEY$: IF a$ = " " THEN GOTO 60010 ELSE GOTO 60009
60011 IF a < A1 THEN LOCATE LN, COL + a: PRINT CHR$(95);
60012 a = a - 1: IF a < 0 THEN a = 0: AN$ = LEFT$(AN$, a): GOTO 60007 ELSE AN$ = LEFT$(AN$, a): GOTO
60007
60013 a = 0
60014 IF a$ = CHR$(91) THEN LOCATE LN, COL: PRINT STRING$(A1, 95); ELSE LOCATE LN, COL + a: PRINT
STRING$(A1 - a, " ");
60015 RETURN
60016 LN = CSRLIN: COL = POS(0): RETURN
60017 LN = CSRLIN: COL = POS(0)
60018 S = 1: AN$ = "": LOCATE LN, COL: PRINT STRING$(A1, 95); " ";
60019 a$ = INKEY$: IF a$ = " " THEN GOTO 60019 ELSE IF INSTR("0123456789", a$) THEN GOTO 60020 ELSE ON
INSTR(CHR$(8) + CHR$(31) + " " + " " + CHR$(13) + CHR$(91), a$) GOTO 60018, 60018, 60023, 60021, 60024,
60026: GOTO 60019
60020 AN$ = AN$ + a$: IF LEN(AN$) > A1 THEN AN$ = LEFT$(AN$, A1): GOTO 60019 ELSE LOCATE LN, COL + A1
- LEN(AN$): PRINT AN$: GOTO 60019
60021 S = -S: LOCATE LN, COL + A1: PRINT " "; : IF S = -1 THEN PRINT "- "; ELSE PRINT " ";
60022 GOTO 60019
60023 IF INSTR(AN$, " ") = 0 THEN GOTO 60020 ELSE GOTO 60019
60024 IF AN$ = " " THEN GOTO 60026 ELSE LOCATE LN, COL: PRINT STRING$(A1 - LEN(AN$), " ");
60025 IF S = -1 THEN AN$ = " " + AN$: GOTO 60027 ELSE GOTO 60027

```

```

60026 IF a$ = CHR$(91) THEN LOCATE LN, COL: PRINT STRING$(A1, 95); " "; ELSE PRINT STRING$(A1, " ");
" ";
60027 RETURN

```

```

SAILFEE:
COLOR 7, 1
CLS
COLOR 4, 7
LOCATE 10, 22
PRINT "
PRINT "
LOCATE 11, 22
LOCATE 12, 22
PRINT "
LOCATE 13, 22
PRINT "
LOCATE 14, 22
PRINT "
LOCATE 15, 22
PRINT "
LOCATE 16, 22
PRINT "
LOCATE 17, 22
PRINT "
LOCATE 18, 22
PRINT "
GOSUB nextscreen
CLS
RETURN

print.averages:
COLOR 7, 1
CLS

```

```

COLOR 4, 7
LOCATE 6, 25
PRINT " "
LOCATE CSRLIN, 25
PRINT " " Store Averages
LOCATE CSRLIN, 25
PRINT " "
LOCATE CSRLIN, 25
PRINT " " Store A
LOCATE CSRLIN, 25
PRINT " " Store B
LOCATE CSRLIN, 25
PRINT " " Store C
LOCATE CSRLIN, 25
PRINT " "
LOCATE 9, 43
PRINT AVG$:
LOCATE 10, 43
PRINT AVGB$:
LOCATE 11, 43
PRINT AVGC$:
COLOR 7, 1
GOSUB nextscreen
RETURN

SCALEQUEST:
CLS
PRINT "Please indicate using the numbers 1 to 7 at the top of the keyboard, the"
PRINT "extent to which you agree or disagree with the following statements."
GOSUB nextscreen
LOCATE 6, 1
PRINT
PRINT "I feel committed to renting tapes from Store A."
PRINT
PRINT "Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7

```

```

GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 1) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I do "; : COLOR 4, 7: PRINT "NOT"; : COLOR 7, 1: PRINT " feel constrained to renting tapes from
Store A on a regular basis."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 2) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I feel that I am (and probably will be) a steady customer of Store A."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 3) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "Store A has my loyalty."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 4) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information were available about how each store would score on each"
PRINT "particular trip, then I feel that it would be important to purchase a lot"
PRINT "of information about the various stores before making a selection."

```

```

PRINT "
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 5) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information were for sale about how each store would score on each"
PRINT "particular trip, then I would "; : COLOR 4, 7: PRINT "NOT"; : PRINT " be willing to"
PRINT "choose a store without"
PRINT "first purchasing a lot of information about what the stores would score"
PRINT "on each trip."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 6) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "If information were for sale and Store A were to drop its average number"
PRINT "of points by 10, it would be necessary to purchase a lot of information to"
PRINT "make a 'good choice'."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"
min% = 1: max% = 7
GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 7) = a%
lineX% = 6: Column% = 1: numlines% = 7: GOSUB Clearline
PRINT
PRINT "I would be willing to give up 10 points to see in advance what the exact"
PRINT "scores will be for the three stores on the upcoming trip."
PRINT
PRINT " Disagree 1 2 3 4 5 6 7 Agree"

```

```
min% = 1: max% = 7
GOSUB PRINT.TRIP.NUM
GOSUB getans
TRANS2%((XYZ% - 1) * 8 + 8) = a%
RETURN

PRINT.TRIP.NUM:
LOCATE 25, 75
PRINT MAINLOOP%;
RETURN
```

APPENDIX 2
PRELIMINARY INSTRUCTIONS PROTOCOL

Welcome to the Experiment I

This study is designed to examine some of the factors which influence how consumers make choices. Most of the time, consumers try to purchase products which make them happiest. That is, they try to purchase the best product available at a reasonable price. However, there are many products available in the marketplace and it is often difficult to know just which product is the best. This is because it is not always easy and often expensive to collect all of the information available about all products. This experiment is designed to explore how consumers make decisions in situations like this.

This experiment consists of a computerized shopping task. During the task, you will have the opportunity to view information about several products and make a series of choices. To better approximate a real world purchasing environment, where your choices have an impact on your wellbeing, we are offering an incentive to do well in this experiment. We are offering a cash prize of \$25 each to the 10 students who score the most points in the experiment. You will be told more about how the points are scored in a few minutes. As you can see, however, it is in your best interests to do the best you can in the experiment.

The Shopping Task

In this shopping task, you are to imagine that you are going to rent one video tape a week from one of three rental stores over the course of a ten week period. The three video rental stores are in a local market. Your task will be to choose one of these three stores on each of ten occasions. To avoid any confusion with stores that you may be familiar with, the stores will be referred to as Store A, Store B and Store C.

The point scoring will be explained in the next screen.

To begin the task you will be given 300 points. For each choice you make, a number of additional points will be awarded depending on how good the store is that you chose. The number of points is determined by the store's score on three attributes. These attributes are:

- (1) The number of video tapes that the store has in stock.
- (2) The number of top twenty movies the store has in stock.
- (3) The amount of time required to shop in the store.

These attributes were chosen because a large scale survey of frequent video tape renters indicated that these attributes, as well as price, were the most important attributes of video tape rental stores. Using these attributes as a guide, most stores in this experiment will score between 20 and 50 points.

To help you make your decisions you will be given a description of the three stores. Part of the description will include the average overall scores that each of the three stores provide. These scores are accurate representations of what you can expect to get from these stores. However, as in the real world, any given store may differ in its appeal at different times. For example, sometimes stores run out of the items that you are interested in. Sometimes it takes longer to make purchases because lines are long, etc. This fact of life is reflected in the experiment. Sometimes stores will score above their average and sometimes stores will score below their average. However, over the long run, the stores will provide their average scores. Thus, this overall average information is very useful in that it lets you predict long term average scores. Realize, however, that occasionally, stores may score above or below their average.

Task Summary

To Summarize your task:

You will make a total of ten shopping trips. On each trip you are to choose a store from which you wish to rent a video movie. Prior to making your first trip you will be supplied with descriptions of the three stores and their overall averages. Then, on each trip, you will go through a total of three stages: a survey stage; a choice stage; and a feedback stage. These stages will now be explained.

Survey Stage

Before making each choice, you will be surveyed about your attitudes about the various stores. After the survey stage you will proceed on to the choice stage.

Choice Stage

In the choice stage of the experiment, you will choose the store that you wish to rent from for that particular trip. After you complete your choice, you will proceed to the feedback stage.

Feedback Stage

In the feedback stage you will be told how many points you earned for picking the store you did on that trip. You will also be told the number of points you have earned in total up to that point in time. Additionally, You will also be told about how the stores you did not pick on that particular trip scored and how many points you could have earned had you picked either of the other two stores.

Summary

The three stages described above: survey; choice; and feedback are repeated for each of the ten shopping trips. On each trip you will complete a survey and make a choice. After each choice you will be told about how well you did and how well you could have done had you chosen one of the other stores.

You will make a total of 10 choices and the total amount of points that you have accumulated at the end of the experiment will be used to determine whether you have won one of the cash prizes.

Do you have any questions about the task that you want the experimenter to answer (Y/N)?

APPENDIX 3
STORE DESCRIPTIONS , PROTOCOL

Store Descriptions

Three video tape rental stores exist in this market. They will be referred to as Store A, B and C. On the next three screens, brief reviews of the three stores will be presented. These reviews were prepared by a local independent newspaper and are honest non-biased descriptions of the three stores in the local market. After you see the descriptions of the three stores, if you wish to, you will be allowed to go back and view any of the descriptions again.

Store A

Store A is the largest store and has been in business the longest (5 years). Since it is such a large store, it employs a large number of sales clerks who are eager to help you find what you are looking for quickly and to speed the check out process. Since Store A is so large, it has a great deal of buying power. As a result it has a very large selection of movies as well as a large selection of top twenty hits. They stock a large supply of hit movies which are not found on cable movie channels such as HBO and Cinemax. For example, on a recent trip we surveyed Store A's selection and found several copies of the following movies: Top Gun; Cobra; Short Circuit; Down and Out in Beverly Hills; The Fly; Name of the Rose; The Last Starfighter; Return of the Jedi; Ruthless People; Cocoon; Aliens; and Beverly Hills Cop.

On an average trip, Store A provides 40 points.

Store B

Store B is a medium sized store and has been in business a year and a half. It has a fair staff which tries to be helpful but the store is often out of top titles and it sometimes takes a fairly long time to find what you are looking for. The store provides a fair selection with an average amount of top hit movies although a large number of Store B's top selections can be found on cable movie channels as well. For example, on a recent trip we surveyed Store B's selections and found the following titles to be the best available: Klute; Fletch; Brazil; American Flyers; Octopussy; Bad Medicine; The Final Countdown; Rambo; After Hours; The Legend of Billie Jean; A Nightmare on Elm Street; and Protocol.

On an average trip, Store B provides 20 points.

Store C

Store C is similar to Store B in that it is a fairly new store (1 year old), with a fair amount of titles and a fair amount of top titles. However, it is smaller than Store B and is very often quite crowded requiring a long time to find titles and check out movies. The store's selection is often quite limited since the store is rather small. For example, on a recent trip we surveyed Store C's selections and found the following titles to be the best available: Oliver; Night Patrol; My Science Project; Police Academy 2; The Brother From Another Planet; California Suite; Iron Eagle; and Carrie.

On an average trip, Store C provides 15 points.

You may go back and review any of the store descriptions if you would like to.

Hit the red A key on the left side of the keyboard to see Store A again
Hit the red B key on the left side of the keyboard to see Store B again
Hit the red C key on the left side of the keyboard to see Store C again

Hit the space bar to go on with the experiment.

APPENDIX 4 INITIATION FEE INSTRUCTIONS

Store Averages

Store A	Store B	Store C
40	20	15

Store A Initiation Fee

In order to shop at Store A, an initiation fee of 100 points is required. Regardless of whether initiation fees are a good deal in your particular local market, stores that charge an initiation fee in the market that this shopping experiment takes place in do so in order to bring you higher levels of the attributes than would otherwise be possible. As you can see, Store A typically provides an average of 40 points per trip. This beats its nearest competitor (Store B) by an average of 20 points ON EACH TRIP. Over the course of this ten period game, that is a difference of 200 points. If you pay the fee and subtract the initial 100 point investment, that still leaves you with 100 extra points as profit.

Paying the fee allows you the freedom to choose from any of the three stores on each of the TEN store trips. If you do not pay the initiation fee now you will NOT BE ALLOWED TO PAY IT LATER AND YOU WILL NOT BE ALLOWED TO CHOOSE STORE A ON ANY OF THE TRIPS.

Pay Fee ?

Do you wish to pay the initiation fee so that you can rent movies from Store A (Y/N)?

APPENDIX 5
STORE AVERAGE REMINDER SCREEN

Store Averages

Store A	40
Store B	20
Store C	15

APPENDIX 6
INITIATION FEE REMINDER SCREEN

Remember You Paid
100 Points
You may choose Store A

APPENDIX 7
SURVEY

Survey

Please respond to the following set of questions using the keys (1-7) at the top of the keyboard.

Please respond as quickly as possible without sacrificing accuracy.

How much do you like or dislike Store A IN GENERAL ?

Dislike 1 2 3 4 5 6 7 Like

In general, how good or bad of a store do you think Store A is ?

Bad 1 2 3 4 5 6 7 Good

How much do you like or dislike Store B IN GENERAL ?

Dislike 1 2 3 4 5 6 7 Like

In general, how good or bad of a store do you think Store B is ?

Bad 1 2 3 4 5 6 7 Good

How much do you like or dislike Store C IN GENERAL ?

Dislike 1 2 3 4 5 6 7 Like

In general, how good or bad of a store do you think Store C is ?

Bad 1 2 3 4 5 6 7 Good

After each of the above questions was answered the following question was asked:

How confident are you about the answer you just gave ?

Not Confident 1 2 3 4 5 6 7 Very Confident

APPENDIX 8
ONLINE QUESTIONNAIRE

Please indicate using the numbers 1 to 7 at the top of the keyboard, the extent to which you agree or disagree with the following statements.

I feel committed to renting tapes from Store A.

Disagree 1 2 3 4 5 6 7 Agree

I do NOT feel constrained to renting tapes from Store A on a regular basis.

Disagree 1 2 3 4 5 6 7 Agree

I feel that I am (and probably will be) a steady customer of Store A.

Disagree 1 2 3 4 5 6 7 Agree

Store A has my loyalty.

Disagree 1 2 3 4 5 6 7 Agree

If information were available about how each store would score on each particular trip, then I feel that it would be important to purchase a lot of information about the various stores before making a selection.

Disagree 1 2 3 4 5 6 7 Agree

If information were for sale about how each store would score on each particular trip, then I would NOT be willing to choose a store without first purchasing a lot of information about what the stores would score on each trip.

Disagree 1 2 3 4 5 6 7 Agree

If information were for sale and Store A were to drop its average number of points by 10, it would be necessary to purchase a lot of information to make a 'good choice'.

Disagree 1 2 3 4 5 6 7 Agree

I would be willing to give up 10 points to see in advance what the exact scores will be for the three stores on the upcoming trip.

Disagree 1 2 3 4 5 6 7 Agree

APPENDIX 9
CHOICE SCREEN

Make A Choice for Period 1

Indicate your choice of Store A, B or C using the RED
keys on the left side of the keyboard

A

B

C

APPENDIX 10
CHOICE VERIFICATION SCREEN

You chose Store A

If this is correct hit the RED OK key.

If this is a mistake hit the RED X key.

A <---

B

C

OK X

APPENDIX 11
SAMPLE FEEDBACK SCREEN

Feedback Screen

Points Earned On Trip 1 = 43

Points awarded for Store A = 43

Last Period Store Scores		Total number of points each brand has offered so far in the experiment	
Store A	43	Store A	43
Store B	19	Store B	19
Store C	16	Store C	16

YOUR TOTAL SCORE 243

APPENDIX 12
STORE A UP AND STORE B DOWN MANIPULATIONS

Store A Down Manipulation

Announcement From Store A

Store A is sad to announce that due to a change in the government regulations concerning relationships with Japanese distributors of video tapes, Store A's costs have increased. As a result, since we did not want to raise our prices, beginning next period Store A will be forced to reduce its average level of points from 40 to 20. There will still be variability in the scores for Store A from trip to trip but the average will now be 20 instead of 40. Store A is truly sorry about this unforeseen circumstance and hopes that our loyal customers stay with us.

NOTE FROM THE EXPERIMENT ADMINISTRATOR:

Since Store A is the only store which deals with Japanese distributors, you can expect that all the store averages will remain as they now are for the remainder of the game.

Store B Up Manipulation

Announcement From Store B

Store B is happy to announce that due to a change in the government regulations concerning relationships with Japanese distributors of video tapes, Store B's costs have been reduced. As a result, beginning next period, Store B intends to raise its average level of points from 20 to 40. There will still be variability in the scores for Store B from trip to trip but the average will now be 40 instead of 20.

NOTE FROM THE EXPERIMENT ADMINISTRATOR:

Since Store B is the only store which deals with Japanese distributors, you can expect that all the store averages will remain as they now are for the remainder of the game.

APPENDIX 13
TASK REACTION QUESTIONNAIRE

The major portion of the experiment is now completed. We would now like you to complete a short questionnaire.

Note: the questions on this and the following two pages were asked of the RETROSPECTIVE subjects at the end of the experiment. The ONLINE subjects received similar questions during the experiment (APPENDIX 8).

The following set of questions concern the way you felt at the beginning of the experiment

Think back to the beginning of the experiment (about the time you made your first trip). Please indicate the extent to which you agree or disagree with the following statements about how you felt at the beginning of the experiment.

I felt committed to renting tapes from Store A.

Disagree 1 2 3 4 5 6 7 Agree

I did NOT feel constrained to renting tapes from Store A on a regular basis.

Disagree 1 2 3 4 5 6 7 Agree

I feel that I was (and probably would be) a steady customer of Store A.

Disagree 1 2 3 4 5 6 7 Agree

Store A had my loyalty.

Disagree 1 2 3 4 5 6 7 Agree

If information had been available about how each store would score on each particular trip, then I feel that it would have been important to purchase a lot of information about the various stores before making a selection.

Disagree 1 2 3 4 5 6 7 Agree

If information had been for sale about how each store would score on each particular trip, then I would NOT have been willing to choose a store without first purchasing a lot of information about what the stores would score on each trip.

Disagree 1 2 3 4 5 6 7 Agree

If information were for sale and Store A were to have dropped its average number of points by 10, it would have been necessary to purchase a lot of information to make a 'good choice'.

Disagree 1 2 3 4 5 6 7 Agree

I would have been willing to give up 10 points to see in advance what the exact scores would have been for the three stores on the upcoming trip.

Disagree 1 2 3 4 5 6 7 Agree

Note: The expression "A lowered" in the following 3 paragraphs was replaced with "B raised" for subjects in the B up condition.

The following set of question refer to how you felt when Store A lowered its score.

Think back to the time in the experiment when Store A lowered its score.

Please indicate the extent to which you agree or disagree with the following statements about the way you felt at the time when Store A lowered its score.

I felt committed to renting tapes from Store A.

Disagree 1 2 3 4 5 6 7 Agree

I did NOT feel constrained to renting tapes from Store A on a regular basis.

Disagree 1 2 3 4 5 6 7 Agree

I feel that I was (and probably would be) a steady customer of Store A.

Disagree 1 2 3 4 5 6 7 Agree

Store A had my loyalty.

Disagree 1 2 3 4 5 6 7 Agree

If information had been available about how each store would score on each particular trip, then I feel that it would have been important to purchase a lot of information about the various stores before making a selection.

Disagree 1 2 3 4 5 6 7 Agree

If information had been for sale about how each store would score on each particular trip, then I would NOT have been willing to choose a store without first purchasing a lot of information about what the stores would score on each trip.

Disagree 1 2 3 4 5 6 7 Agree

If information were for sale and Store A were to have dropped its average number of points by 10, it would have been necessary to purchase a lot of information to make a 'good choice'.

Disagree 1 2 3 4 5 6 7 Agree

I would have been willing to give up 10 points to see in advance what the exact scores would have been for the three stores on the upcoming trip.

Disagree 1 2 3 4 5 6 7 Agree

The following set of questions are concerned with how you would feel if the experiment were to continue on for another few periods.

Please indicate the extent to which you agree or disagree with the following statements about how you would feel if the experiment were to go on for another few periods.

I would feel committed to renting tapes from Store A.

Disagree 1 2 3 4 5 6 7 Agree

I would NOT feel constrained to renting tapes from Store A on a regular basis.

Disagree 1 2 3 4 5 6 7 Agree

I would probably be a steady customer of Store A.

Disagree 1 2 3 4 5 6 7 Agree

Store A would have my loyalty.

Disagree 1 2 3 4 5 6 7 Agree

If information was available about how each store would score on each particular trip, then I feel that it would be important to purchase a lot of information about the various stores before making a selection.

Disagree 1 2 3 4 5 6 7 Agree

If information was for sale about how each store would score on each particular trip, then I would NOT be willing to choose a store without first purchasing a lot of information about what the stores would score on each trip.

Disagree 1 2 3 4 5 6 7 Agree

If information was for sale and Store A dropped its average number of points by 10, it would be necessary to purchase a lot of information to make a 'good choice'.

Disagree 1 2 3 4 5 6 7 Agree

I would be willing to give up 10 points to see in advance what the exact scores would be for the three stores on the upcoming trip.

Disagree 1 2 3 4 5 6 7 Agree

The following set of questions refer to how you feel about the way you were treated by Store A during the experiment.

At this point in time, I feel that Store A treated me unfairly.

Disagree 1 2 3 4 5 6 7 Agree

At this point in time, I feel that Store A treated me justly.

Disagree 1 2 3 4 5 6 7 Agree

At this point in time, I feel that the initiation fee I paid to join Store A was a good investment.

Disagree 1 2 3 4 5 6 7 Agree

I am happy I paid the initiation fee to join Store A.

Disagree 1 2 3 4 5 6 7 Agree

At this point in time, I feel that Store A provided sufficient value to warrant paying the 100 point initiation fee.

Disagree 1 2 3 4 5 6 7 Agree

Using a total of 100 points. Assign the points to the three stores (A,B,and C) in proportion to your liking for the three stores. Enter the number of points you wish to assign next to each brand then hit the return key ↵

To start over enter 999 for any store.

Store A ____
Store B ____
Store C ____

During the first several periods of the shopping game, how much attention did you pay to the information (that was presented on the feedback screen) about the payoffs each store provided ?

	Very								
little	1	2	3	4	5	6	7	A lot	

During the course of the experiment, how hard did you try to get the maximum amount of points possible ?

Not hard								Very
at all	1	2	3	4	5	6	7	hard

During the course of the experiment, did you tend to try to get the most points possible or did you just try to 'get through' the task ?

Just get								Tried to score the
through	1	2	3	4	5	6	7	most points possible

Please rate the extent to which you felt each of the following situations that you encountered in the experiment were realistic or unrealistic.

Making decisions based on information seen on a computer screen.

Very								Very
Unrealistic	1	2	3	4	5	6	7	Realistic

Renting video tapes

Very								Very
Unrealistic	1	2	3	4	5	6	7	Realistic

Being in a purchase situation where you don't have all the information available about certain products.

Very								Very
Unrealistic	1	2	3	4	5	6	7	Realistic

Being in a situation in which a store doesn't always provide the same amount of satisfaction on different occasions.

Very								Very
Unrealistic	1	2	3	4	5	6	7	Realistic

Being in a situation where some type of cost or initiation fee is required to shop at a particular store.

Very								Very
Unrealistic	1	2	3	4	5	6	7	Realistic

How realistic were the attributes used, (i.e., How realistic are number of movies, number of top 20 movies, and waiting time as attributes of video movie renting ?

Very										Very
Unrealistic	1	2	3	4	5	6	7			Realistic

How realistic is it that these attributes might vary from time to time within a given store ?

Very										Very
Unrealistic	1	2	3	4	5	6	7			Realistic

Once the experiment was explained, how well would you say that you understood the task ?

Not										Very
at all	1	2	3	4	5	6	7			well

How difficult did you find the task to be ?

Very										Very
difficult	1	2	3	4	5	6	7			easy

Do you own a VCR ?

1. YES
2. No

Do you ever rent video movies?

1. Yes
2. No

On average, how often do you rent video movies ?

1. Less than once a month
2. One or two times a month
3. Three or four times a month
4. Five or six times a month
5. More than 6 times a month

What is your sex ?

1. Male
2. Female

Are you a student ?

1. Yes
2. No

What is your major ?

Type in your major and then hit the return key on your right (↵).

What is your classification (e.g., 3BA, 2UF, etc.) ?

Type in your classification and then hit the return key (↵).

Which age group do you fall into ?

1. Under 17

2. 17-20

3. 21-24

4. 25-30

5. 31-40

6. 41-50

7. 51-60

8. 61-70

9. Over 70

Occupation (if you work)

1. Dont Work

2. Professional

3. Clerical

4. Sales

5. Management

6. Housewife

7. Other

What is the highest level of formal education that you have completed?

1. No high school degree

2. Graduated high school

3. Less than 2 years of college

4. More than 2 years of college but no bachelor degree

5. Bachelor Degree

6. Some graduate school but no graduate degree

7. Graduate degree

Which category does your personal yearly annual income level fall into?

1. Less than \$10,000

2. \$10,001 - \$15,000

3. \$15,001 - \$20,000

4. \$20,001 - \$30,000

5. \$30,001 - \$40,000

6. \$40,001 - \$50,000

7. \$50,001 - \$60,000

8. \$60,001 - \$70,000

0. NO RESPONSE

Are you expecting to receive class credit for participating in this experiment ?

1. Yes
2. No

How sufficient do you think the cash prizes offered were at encouraging you to do the best you could in the experiment ?

Not sufficient								Quite
at all	1	2	3	4	5	6	7	sufficient

APPENDIX 14
NUMBER OF ONLINE / RETROSPECTIVE BY TASK FACTOR INTERACTIONS

Variables Directly Manipulated

Variable	Number of Significant Interactions	
MSDEP	1 / 7	Total 2 / 14
PIDEP	1 / 7	
		χ^2 Goodness of Fit Test:
		$\chi^2 = (2 - .7)^2 / .7 = 2.41, p > .10$

Variables Not Directly Manipulated

Variable	Number of Significant Interactions	
Attitude Period 1	0 / 7	
Attitude Period 2	1 / 7	
Attitude Period 3	0 / 7	
Attitude Period 4	0 / 7	
Attitude Period 5	0 / 7	
Attitude Period 6	0 / 7	Total 8 / 168
Attitude Period 7	0 / 7	
Attitude Period 8	0 / 7	χ^2 Goodness of Fit Test:
Attitude Period 9	0 / 7	$\chi^2 = (8 - 8.4)^2 / 8 = 0.19, p > .5$
Attitude Period 10	0 / 7	
Relative Att. Period 1	1 / 7	
Relative Att. Period 2	1 / 7	
Relative Att. Period 3	1 / 7	
Relative Att. Period 4	1 / 7	
Relative Att. Period 5	1 / 7	
Relative Att. Period 6	1 / 7	
Relative Att. Period 7	1 / 7	
Relative Att. Period 8	0 / 7	
Relative Att. Period 9	0 / 7	
Relative Att. Period 10	0 / 7	
Choice (Out of 4)	0 / 7	
Store A Treated Me Fair	0 / 7	
Store A Treated Me Just	1 / 7	
Paying The Fee Was A Good		
Idea (3 item scale)	0 / 7	

APPENDIX 15 ONLINE / RETROSPECTIVE BY TASK FACTOR INTERACTION ANOVA TABLES AND MEANS

The following pages contain the ANOVA tables and cell means for all of the variables exhibiting an ONLINE/RETROSPECTIVE X TASK FACTOR interaction. The following conventions are used in naming the variables:

Dependent Variables

Printed Variable Name	Meaning
MSDEP	Motivation to Search
PIDEP	Purchase Intention
ATA2	Period 2 Attitude Score for Store A
RELAT1 - RELAT6	Per. 1-6 Relative Attitude - Store A
TR27	Store A Treated Me Justly

Independent Variables

Printed Variable Name	Meaning
ONRET	1 = Online, 2 = Retrospective
SUNKCOST	0 = No Sunk Cost, 1 = Sunk Cost
PERCHG	3 = Per. 3, 7 = Per. 7
SOURCECH	1 = A - Down 2 = B - Up

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GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: MSDEP

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	9203.95492662	613.59699511
ERROR	143	12261.94444444	85.74786325
CORRECTED TOTAL	158	21465.89937107	

MODEL F =	7.16	PR > F = 0.0001
-----------	------	-----------------

R-SQUARE	C.V.	ROOT MSE	MSDEP MEAN
0.428771	39.7286	9.26001421	23.30817610

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	7219.29965636	84.19	0.0001
SUNKCOST	1	258.26048110	3.01	0.0848
ONRET*SUNKCOST	1	11.08522337	0.13	0.7197
PER	1	2.28552883	0.03	0.8705
ONRET*PER	1	1.69537992	0.02	0.8884
SUNKCOST*PER	1	20.25391371	0.24	0.6277
ONRET*SUNKCOST*PER	1	0.26582665	0.00	0.9557
SOURCECH	1	124.14089347	1.45	0.2309
ONRET*SOURCECH	1	417.07285223	4.86	0.0290
SUNKCOST*SOURCECH	1	603.41512027	7.04	0.0089
ONRET*SUNKCOST*SOURCECH	1	224.08316151	2.61	0.1082
PER*SOURCECH	1	8.36662848	0.10	0.7552
ONRET*PER*SOURCECH	1	6.11599847	0.07	0.7898
SUNKCOST*PER*SOURCECH	1	177.13088965	2.07	0.1528
ONRE*SUNKCOST*PER*SOURCECH	1	103.64452081	1.21	0.2734

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GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: PIDEP

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	846.52788260	56.43519217
ERROR	143	787.71111111	5.50846931
CORRECTED TOTAL	158	1634.23899371	

MODEL F =	10.25	PR > F = 0.0001
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R-SQUARE	C.V.	ROOT MSE	PIDEP MEAN
0.517995	30.8920	2.34701285	7.59748428

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	763.03329515	138.52	0.0001
SUNKCOST	1	1.69537992	0.31	0.5799
ONRET*SUNKCOST	1	0.47659412	0.09	0.7691
PER	1	0.24810997	0.05	0.8322
ONRET*PER	1	7.29140893	1.32	0.2519
SUNKCOST*PER	1	13.27903780	2.41	0.1227
ONRET*SUNKCOST*PER	1	0.24810997	0.05	0.8322
SOURCECH	1	6.11599847	1.11	0.2938
ONRET*SOURCECH	1	1.43329515	0.26	0.6108
SUNKCOST*SOURCECH	1	0.81015655	0.15	0.7019
ONRET*SUNKCOST*SOURCECH	1	0.47659412	0.09	0.7691
PER*SOURCECH	1	0.19862543	0.04	0.8497
ONRET*PER*SOURCECH	1	0.19862543	0.04	0.8497
SUNKCOST*PER*SOURCECH	1	17.81512027	3.23	0.0742
ONRET*SUNKCOST*PER*SOURCECH	1	37.95532646	6.89	0.0096

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GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: ATA2

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	64.81771488	4.32118099
ERROR	143	378.23888889	2.64502720
CORRECTED TOTAL	158	443.05660377	

MODEL F =	1.63	PR > F = 0.0718
-----------	------	-----------------

R-SQUARE	C.V.	ROOT MSE	ATA2 MEAN
0.146297	12.9425	1.62635396	12.56603774

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	0.22682321	0.09	0.7701
SUNKCOST	1	11.05614738	4.18	0.0427
ONRET*SUNKCOST	1	7.99177167	3.02	0.0843
PER	1	0.04217258	0.02	0.8997
ONRET*PER	1	2.71342115	1.03	0.3128
SUNKCOST*PER	1	0.98375334	0.37	0.5429
ONRET*SUNKCOST*PER	1	2.21995036	0.84	0.3611
SOURCECH	1	0.93243604	0.35	0.5536
ONRET*SOURCECH	1	8.95809469	3.39	0.0678
SUNKCOST*SOURCECH	1	2.06645666	0.78	0.3782
ONRET*SUNKCO*SOURCEC	1	12.00551737	4.54	0.0348
PER*SOURCECH	1	0.27035128	0.10	0.7497
ONRET*PER*SOURCECH	1	6.71342115	2.54	0.1133
SUNKCOS*PER*SOURCECH	1	6.57825506	2.49	0.1170
ONRE*SUNKC*PER*SOURC	1	1.38146239	0.52	0.4710

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 GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: TR26

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	73.61624738	4.90774983
ERROR	143	278.09444444	1.94471639
CORRECTED TOTAL	158	351.71069182	

MODEL F = 2.52 PR > F = 0.0024

R-SQUARE	C.V.	ROOT MSE	TR26 MEAN
0.209309	25.4278	1.39453089	5.48427673

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	3.35168003	1.72	0.1913
SUNKCOST	1	26.71800305	13.74	0.0003
ONRET*SUNKCOST	1	0.01009927	0.01	0.9427
PER	1	0.14450172	0.07	0.7856
ONRET*PER	1	1.48608247	0.76	0.3835
SUNKCOST*PER	1	0.51975945	0.27	0.6060
ONRET*SUNKCOST*PER	1	1.12731959	0.58	0.4477
SOURCECH	1	18.22315769	9.37	0.0026
ONRET*SOURCECH	1	0.04583811	0.02	0.8782
SUNKCOST*SOURCECH	1	1.63896525	0.84	0.3601
ONRET*SUNKCOST*SOURCECH	1	10.25752195	5.27	0.0231
PER*SOURCECH	1	1.07233677	0.55	0.4590
ONRET*PER*SOURCECH	1	0.68195876	0.35	0.5547
SUNKCOST*PER*SOURCECH	1	2.27233677	1.17	0.2815
ONRE*SUNKC*PER*SOURC	1	5.02422680	2.58	0.1102

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GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: RELAT1

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	0.05886773	0.00392452
ERROR	143	0.24508019	0.00171385
CORRECTED TOTAL	158	0.30394792	

MODEL F =	2.29	PR > F = 0.0062
-----------	------	-----------------

R-SQUARE	C.V.	ROOT MSE	RELAT1 MEAN
0.193677	7.0013	0.04139864	0.59130003

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	0.00400335	2.34	0.1286
SUNKCOST	1	0.00567506	3.31	0.0709
ONRET*SUNKCOST	1	0.00126184	0.74	0.3923
PER	1	0.00254862	1.49	0.2247
ONRET*PER	1	0.00016526	0.10	0.7566
SUNKCOST*PER	1	0.00001464	0.01	0.9265
ONRET*SUNKCOST*PER	1	0.00049992	0.29	0.5900
SOURCECH	1	0.00006537	0.04	0.8454
ONRET*SOURCECH	1	0.00616075	3.59	0.0600
SUNKCOST*SOURCECH	1	0.01139831	6.65	0.0109
ONRET*SUNKCOST*SOURCECH	1	0.02227282	13.00	0.0004
PER*SOURCECH	1	0.00214708	1.25	0.2649
ONRET*PER*SOURCECH	1	0.00157293	0.92	0.3397
SUNKCOST*PER*SOURCECH	1	0.00000011	0.00	0.9937
ONRE*SUNKC*PER*SOURC	1	0.00018290	0.11	0.7444

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GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: RELAT2

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	0.08690642	0.00579376
ERROR	143	0.42229607	0.00295312
CORRECTED TOTAL	158	0.50920249	

MODEL F =	1.96	PR > F = 0.0219
-----------	------	-----------------

R-SQUARE	C.V.	ROOT MSE	RELAT2 MEAN
0.170672	9.3020	0.05434261	0.58420332

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	0.00337695	1.14	0.2867
SUNKCOST	1	0.00069444	0.24	0.6285
ONRET*SUNKCOST	1	0.00928484	3.14	0.0783
PER	1	0.00026912	0.09	0.7632
ONRET*PER	1	0.00241250	0.82	0.3676
SUNKCOST*PER	1	0.00005527	0.02	0.8914
ONRET*SUNKCOST*PER	1	0.00087902	0.30	0.5862
SOURCECH	1	0.00314822	1.07	0.3036
ONRET*SOURCECH	1	0.00845681	2.86	0.0928
SUNKCOST*SOURCECH	1	0.00636346	2.15	0.1443
ONRET*SUNKCOST*SOURCECH	1	0.03078955	10.43	0.0015
PER*SOURCECH	1	0.00058100	0.20	0.6580
ONRET*PER*SOURCECH	1	0.01323803	4.48	0.0360
SUNKCOST*PER*SOURCECH	1	0.00023768	0.08	0.7771
ONRET*SUNKCOST*PER*SOURCECH	1	0.00220479	0.75	0.3890

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 13:50 THURSDAY, MAY 25, 1989
 GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: RELAT3

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	0.16364107	0.01090940
ERROR	143	0.46467792	0.00324950
CORRECTED TOTAL	158	0.62831899	

MODEL F =	3.36	PR > F = 0.0001
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R-SQUARE	C.V.	ROOT MSE	RELAT3 MEAN
0.260443	10.2492	0.05700435	0.55618442

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	0.00247269	0.76	0.3845
SUNKCOST	1	0.00185367	0.57	0.4513
ONRET*SUNKCOST	1	0.00411441	1.27	0.2624
PER	1	0.08222162	25.30	0.0001
ONRET*PER	1	0.01023444	3.15	0.0781
SUNKCOST*PER	1	0.00036980	0.11	0.7363
ONRET*SUNKCOST*PER	1	0.00531305	1.64	0.2031
SOURCECH	1	0.00110045	0.34	0.5615
ONRET*SOURCECH	1	0.00854825	2.63	0.1070
SUNKCOST*SOURCECH	1	0.01481894	4.56	0.0344
ONRET*SUNKCO*SOURCEC	1	0.01344233	4.14	0.0438
PER*SOURCECH	1	0.00022565	0.07	0.7925
ONRET*PER*SOURCECH	1	0.00172551	0.53	0.4674
SUNKCOS*PER*SOURCECH	1	0.00645132	1.99	0.1610
ONRE*SUNKC*PER*SOURC	1	0.00009083	0.03	0.8675

SAS 9
13:50 THURSDAY, MAY 25, 1989

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: RELAT4

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	0.22553635	0.01503576
ERROR	143	0.57234546	0.00400242
CORRECTED TOTAL	158	0.79788181	

MODEL F = 3.76 PR > F = 0.0001

R-SQUARE	C.V.	ROOT MSE	RELAT4 MEAN
0.282669	11.3198	0.06326465	0.55888442

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	0.00444358	1.11	0.2938
SUNKCOST	1	0.00075713	0.19	0.6643
ONRET*SUNKCOST	1	0.00926592	2.32	0.1303
PER	1	0.16320752	40.78	0.0001
ONRET*PER	1	0.00007450	0.02	0.8917
SUNKCOST*PER	1	0.00007018	0.02	0.8948
ONRET*SUNKCOST*PER	1	0.00118608	0.30	0.5870
SOURCECH	1	0.00117467	0.29	0.5888
ONRET*SOURCECH	1	0.00016503	0.04	0.8394
SUNKCOST*SOURCECH	1	0.00522599	1.31	0.2551
ONRET*SUNKCOST*SOURCECH	1	0.01960222	4.90	0.0285
PER*SOURCECH	1	0.00000352	0.00	0.9764
ONRET*PER*SOURCECH	1	0.00231818	0.58	0.4479
SUNKCOST*PER*SOURCECH	1	0.01024464	2.56	0.1118
ONRET*SUNKCOST*PER*SOURCECH	1	0.00194262	0.49	0.4871

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13:50 THURSDAY, MAY 25, 1989

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: RELAT5

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	0.17148577	0.01143238
ERROR	143	0.55423856	0.00387579
CORRECTED TOTAL	158	0.72572433	

MODEL F =	2.95	PR > F = 0.0004
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R-SQUARE	C.V.	ROOT MSE	RELAT5 MEAN
0.236296	11.0868	0.06225588	0.56153258

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	0.00630487	1.63	0.2042
SUNKCOST	1	0.00181028	0.47	0.4954
ONRET*SUNKCOST	1	0.00145085	0.37	0.5416
PER	1	0.11419887	29.46	0.0001
ONRET*PER	1	0.00446505	1.15	0.2849
SUNKCOST*PER	1	0.00031964	0.08	0.7744
ONRET*SUNKCOST*PER	1	0.00188281	0.49	0.4869
SOURCECH	1	0.00450814	1.16	0.2826
ONRET*SOURCECH	1	0.00086102	0.22	0.6381
SUNKCOST*SOURCECH	1	0.00846638	2.18	0.1416
ONRET*SUNKCOST*SOURCECH	1	0.01336885	3.45	0.0653
PER*SOURCECH	1	0.00008156	0.02	0.8849
ONRET*PER*SOURCECH	1	0.00020219	0.05	0.8197
SUNKCOST*PER*SOURCECH	1	0.00474908	1.23	0.2702
ONRET*SUNKCOST*PER*SOURCECH	1	0.00057588	0.15	0.7005

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 13:50 THURSDAY, MAY 25, 1989
 GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: RELAT6

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
MODEL	15	0.23202790	0.01546853
ERROR	143	0.65369641	0.00457130
CORRECTED TOTAL	158	0.88572431	

MODEL F = 3.38 PR > F = 0.0001

R-SQUARE	C.V.	ROOT MSE	RELAT6 MEAN
0.261964	11.9982	0.06761142	0.56351519

SOURCE	DF	TYPE III SS	F VALUE	PR > F
ONRET	1	0.01075423	2.35	0.1273
SUNKCOST	1	0.00550298	1.20	0.2744
ONRET*SUNKCOST	1	0.00384389	0.84	0.3607
PER	1	0.15613820	34.16	0.0001
ONRET*PER	1	0.00007015	0.02	0.9016
SUNKCOST*PER	1	0.00015177	0.03	0.8557
ONRET*SUNKCOST*PER	1	0.00237994	0.52	0.4718
SOURCECH	1	0.00356071	0.78	0.3790
ONRET*SOURCECH	1	0.00003170	0.01	0.9338
SUNKCOST*SOURCECH	1	0.01017066	2.22	0.1380
ONRET*SUNKCOST*SOURCECH	1	0.01648023	3.61	0.0596
PER*SOURCECH	1	0.00009190	0.02	0.8874
ONRET*PER*SOURCECH	1	0.00191231	0.42	0.5188
SUNKCOST*PER*SOURCECH	1	0.00882068	1.93	0.1670
ONRET*SUNKCOST*PER*SOURCECH	1	0.00550588	1.20	0.2743

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13:50 THURSDAY, MAY 25, 1989

GENERAL LINEAR MODELS PROCEDURE

MEANS

ONRET	N	MSDEP	PIDEP	ATA2
1	81	29.9382716	9.74074074	12.5185185
2	78	16.4230769	5.37179487	12.6153846

ONRET	N	TR26	RELAT1	RELAT2
1	81	5.34567901	0.58635528	0.57917283
2	78	5.62820513	0.59643496	0.58942729

ONRET	N	RELAT3	RELAT4	RELAT5
1	81	0.55136753	0.55281661	0.55450470
2	78	0.56118657	0.56518562	0.56883077

ONRET	N	RELAT6
1	81	0.55459842
2	78	0.57277491

SUNKCOST	N	MSDEP	PIDEP	ATA2
0	80	21.9625000	7.67500000	12.8375000
1	79	24.6708861	7.51898734	12.2911392

SUNKCOST	N	TR26	RELAT1	RELAT2
0	80	5.88750000	0.58576443	0.58692148
1	79	5.07594937	0.59690570	0.58145076

SUNKCOST	N	RELAT3	RELAT4	RELAT5
0	80	0.55387956	0.55765591	0.55911982
1	79	0.55851845	0.56012849	0.56397589

SUNKCOST	N	RELAT6
0	80	0.55860963
1	79	0.56848285

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GENERAL LINEAR MODELS PROCEDURE

MEANS

ONRET	SUNKCOST	N	MSDEP	PIDEP
1	0	40	28.4500000	9.92500000
1	1	41	31.3902439	9.56097561
2	0	40	15.4750000	5.42500000
2	1	38	17.4210526	5.31578947

ONRET	SUNKCOST	N	ATA2	TR26
1	0	40	12.5750000	5.75000000
1	1	41	12.4634146	4.95121951
2	0	40	13.1000000	6.02500000
2	1	38	12.1052632	5.21052632

ONRET	SUNKCOST	N	RELAT1	RELAT2
1	0	40	0.57791347	0.57464615
1	1	41	0.59459119	0.58358910
2	0	40	0.59361539	0.59919680
2	1	38	0.59940292	0.57914361

ONRET	SUNKCOST	N	RELAT3	RELAT4
1	0	40	0.54483060	0.54470905
1	1	41	0.55774502	0.56072643
2	0	40	0.56292852	0.57060276
2	1	38	0.55935294	0.55948336

ONRET	SUNKCOST	N	RELAT5	RELAT6
1	0	40	0.54978291	0.54544171
1	1	41	0.55911133	0.56353180
2	0	40	0.56845673	0.57177755
2	1	38	0.56922449	0.57382477

PER	N	MSDEP	PIDEP	ATA2
3	81	23.3456790	7.66666667	12.5555555
7	78	23.2692308	7.52564103	12.5769231

PER	N	TR26	RELAT1	RELAT2
3	81	5.45679012	0.59476600	0.58199710
7	78	5.51282051	0.58770075	0.58649440

PER	N	RELAT3	RELAT4	RELAT5
3	81	0.53309624	0.52707013	0.53462900
7	78	0.58016060	0.59192235	0.58947092

PER	N	RELAT6
3	81	0.53233374
7	78	0.59589593

ONRET	PER	N	MSDEP	PIDEP	ATA2
1	3	42	29.9761905	9.57142857	12.3809524
1	7	39	29.8974359	9.92307692	12.6666667
2	3	39	16.2051282	5.61538462	12.7435897
2	7	39	16.6410256	5.12820513	12.4871795

ONRET	PER	N	TR26	RELAT1	RELAT2
1	3	42	5.23809524	0.58855432	0.57307690
1	7	39	5.46153846	0.58398709	0.58573769
2	3	39	5.69230769	0.60145550	0.59160348
2	7	39	5.56410256	0.59141441	0.58725111

ONRET	PER	N	RELAT3	RELAT4	RELAT5
1	3	42	0.52079694	0.52075196	0.52282591
1	7	39	0.58428971	0.58734777	0.58862033
2	3	39	0.54634165	0.53387431	0.54734002
2	7	39	0.57603149	0.59649693	0.59032151

ONRET	PER	N	RELAT6
1	3	42	0.52318347
1	7	39	0.58842991
2	3	39	0.54218788
2	7	39	0.60336195

SUNKCOST	PER	N	MSDEP	PIDEP
0	3	40	22.2000000	7.42500000
0	7	40	21.7250000	7.92500000
1	3	41	24.4634146	7.90243902
1	7	38	24.8947368	7.10526316

SUNKCOST	PER	N	ATA2	TR26
0	3	40	12.7750000	5.80000000
0	7	40	12.9000000	5.97500000
1	3	41	12.3414634	5.12195122
1	7	38	12.2368421	5.02631579

SUNKCOST	PER	N	RELAT1	RELAT2
0	3	40	0.58947219	0.58502702
0	7	40	0.58205667	0.58881593
1	3	41	0.59993069	0.57904109
1	7	38	0.59364189	0.58405068

SUNKCOST	PER	N	RELAT3	RELAT4
0	3	40	0.52956458	0.52488611
0	7	40	0.57819455	0.59042570
1	3	41	0.53654177	0.52920088
1	7	38	0.58223013	0.59349777

SUNKCOST	PER	N	RELAT5	RELAT6
0	3	40	0.53084431	0.52622953
0	7	40	0.58739533	0.59098973
1	3	41	0.53832138	0.53828906
1	7	38	0.59165576	0.60106035

ONRET	SUNKCOST	PER	N	MSDEP	PIDEP
1	0	3	20	28.7500000	9.5000000
1	0	7	20	28.1500000	10.3500000
1	1	3	22	31.0909091	9.6363636
1	1	7	19	31.7368421	9.4736842
2	0	3	20	15.6500000	5.3500000
2	0	7	20	15.3000000	5.5000000
2	1	3	19	16.7894737	5.8947368
2	1	7	19	18.0526316	4.7368421

ONRET	SUNKCOST	PER	N	ATA2	TR26
1	0	3	20	12.5000000	5.65000000
1	0	7	20	12.6500000	5.85000000
1	1	3	22	12.2727273	4.86363636
1	1	7	19	12.6842105	5.05263158
2	0	3	20	13.0500000	5.95000000
2	0	7	20	13.1500000	6.10000000
2	1	3	19	12.4210526	5.42105263
2	1	7	19	11.7894737	5.00000000

ONRET	SUNKCOST	PER	N	RELAT1	RELAT2
1	0	3	20	0.58237646	0.57120455
1	0	7	20	0.57345049	0.57808776
1	1	3	22	0.59417055	0.57477903
1	1	7	19	0.59507825	0.59379024
2	0	3	20	0.59656793	0.59884949
2	0	7	20	0.59066285	0.59954410
2	1	3	19	0.60660032	0.58397610
2	1	7	19	0.59220553	0.57431112

ONRET	SUNKCOST	PER	N	RELAT3	RELAT4
1	0	3	20	0.51826869	0.51399018
1	0	7	20	0.57139251	0.57542792
1	1	3	22	0.52309534	0.52689904
1	1	7	19	0.59786571	0.59989497
2	0	3	20	0.54086047	0.53578205
2	0	7	20	0.58499658	0.60542348
2	1	3	19	0.55211132	0.53186616
2	1	7	19	0.56659456	0.58710056

ONRET	SUNKCOST	PER	N	RELAT5	RELAT6
1	0	3	20	0.51964550	0.51627284
1	0	7	20	0.57992032	0.57461058
1	1	3	22	0.52571718	0.52946586
1	1	7	19	0.59777824	0.60297657
2	0	3	20	0.54204312	0.53618623
2	0	7	20	0.59487033	0.60736888
2	1	3	19	0.55291571	0.54850540
2	1	7	19	0.58553328	0.59914413

SOURCECH	N	MSDEP	PIDEP	ATA2
1	80	24.1250000	7.37500000	12.6500000
2	79	22.4810127	7.82278481	12.4810127

SOURCECH	N	TR26	RELAT1	RELAT2
1	80	5.13750000	0.59110844	0.58928617
2	79	5.83544304	0.59149404	0.57905614

SOURCECH	N	RELAT3	RELAT4	RELAT5
1	80	0.55993717	0.56256617	0.56783663
2	79	0.55238417	0.55515608	0.55514874

SOURCECH	N	RELAT6
1	80	0.56924667
2	79	0.55771116

ONRET	SOURCECH	N	MSDEP	PIDEP
1	1	40	32.5000000	9.47500000
1	2	41	27.4390244	10.00000000
2	1	40	15.7500000	5.27500000
2	2	38	17.1315789	5.47368421

ONRET	SOURCECH	N	ATA2	TR26
1	1	40	12.8500000	4.97500000
1	2	41	12.1951220	5.70731707
2	1	40	12.4500000	5.30000000
2	2	38	12.7894737	5.97368421

ONRET	SOURCECH	N	RELAT1	RELAT2
1	1	40	0.59231782	0.59197610
1	2	41	0.58053817	0.56668184
2	1	40	0.58989907	0.58659624
2	2	38	0.60331484	0.59240735

ONRET	SOURCECH	N	RELAT3	RELAT4
1	1	40	0.56333287	0.55828972
1	2	41	0.53969403	0.54747699
2	1	40	0.55654146	0.56684262
2	2	38	0.56607616	0.56344140

ONRET	SOURCECH	N	RELAT5	RELAT6
1	1	40	0.56385847	0.56145306
1	2	41	0.54537908	0.54791097
2	1	40	0.57181478	0.57704028
2	2	38	0.56568970	0.56828505

SUNKCOST	SOURCECH	N	MSDEP	PIDEP
0	1	40	24.8000000	7.55000000
0	2	40	19.1250000	7.80000000
1	1	40	23.4500000	7.20000000
1	2	39	25.9230769	7.84615385

SUNKCOST	SOURCECH	N	ATA2	TR26
0	1	40	12.8000000	5.65000000
0	2	40	12.8750000	6.12500000
1	1	40	12.5000000	4.62500000
1	2	39	12.0769231	5.53846154

SUNKCOST	SOURCECH	N	RELAT1	RELAT2
0	1	40	0.57663772	0.58504109
0	2	40	0.59489114	0.58880186
1	1	40	0.60557917	0.59353125
1	2	39	0.58800983	0.56906052

SUNKCOST	SOURCECH	N	RELAT3	RELAT4
0	1	40	0.54684191	0.55463475
0	2	40	0.56091721	0.56067706
1	1	40	0.57303242	0.57049759
1	2	39	0.54363233	0.54949352

SUNKCOST	SOURCECH	N	RELAT5	RELAT6
0	1	40	0.55714344	0.55533731
0	2	40	0.56109620	0.56188196
1	1	40	0.57852981	0.58315603
1	2	39	0.54904879	0.55343342

ONRET	SUNKCOST	SOURCECH	N	MSDEP
1	0	1	20	34.1000000
1	0	2	20	22.8000000
1	1	1	20	30.9000000
1	1	2	21	31.8571429
2	0	1	20	15.5000000
2	0	2	20	15.4500000
2	1	1	20	16.0000000
2	1	2	18	19.0000000

ONRET	SUNKCOST	SOURCECH	N	PIDEP
1	0	1	20	9.6500000
1	0	2	20	10.2000000
1	1	1	20	9.3000000
1	1	2	21	9.8095238
2	0	1	20	5.4500000
2	0	2	20	5.4000000
2	1	1	20	5.1000000
2	1	2	18	5.5555556

ONRET	SUNKCOST	SOURCECH	N	ATA2
1	0	1	20	12.5000000
1	0	2	20	12.6500000
1	1	1	20	13.2000000
1	1	2	21	11.7619048
2	0	1	20	13.1000000
2	0	2	20	13.1000000
2	1	1	20	11.8000000
2	1	2	18	12.4444444

ONRET	SUNKCOST	SOURCECH	N	TR26
1	0	1	20	5.75000000
1	0	2	20	5.75000000
1	1	1	20	4.20000000
1	1	2	21	5.66666667
2	0	1	20	5.55000000
2	0	2	20	6.50000000
2	1	1	20	5.05000000
2	1	2	18	5.38888889

ONRET	SUNKCOST	SOURCECH	N	RELAT1
1	0	1	20	0.56316440
1	0	2	20	0.59266255
1	1	1	20	0.62147124
1	1	2	21	0.56899115
2	0	1	20	0.59011104
2	0	2	20	0.59711973
2	1	1	20	0.58968710
2	1	2	18	0.61019829

ONRET	SUNKCOST	SOURCECH	N	RELAT2
1	0	1	20	0.56612953
1	0	2	20	0.58316278
1	1	1	20	0.61782266
1	1	2	21	0.55098572
2	0	1	20	0.60395264
2	0	2	20	0.59444095
2	1	1	20	0.56923984
2	1	2	18	0.59014779

ONRET	SUNKCOST	SOURCECH	N	RELAT3
1	0	1	20	0.53592671
1	0	2	20	0.55373449
1	1	1	20	0.59073903
1	1	2	21	0.52632216
2	0	1	20	0.55775711
2	0	2	20	0.56809993
2	1	1	20	0.55532581
2	1	2	18	0.56382753

ONRET	SUNKCOST	SOURCECH	N	RELAT4
1	0	1	20	0.53158267
1	0	2	20	0.55783543
1	1	1	20	0.58499677
1	1	2	21	0.53761182
2	0	1	20	0.57768682
2	0	2	20	0.56351870
2	1	1	20	0.55599842
2	1	2	18	0.56335551

ONRET	SUNKCOST	SOURCECH	N	RELAT5
1	0	1	20	0.54095001
1	0	2	20	0.55861581
1	1	1	20	0.58676693
1	1	2	21	0.53277267
2	0	1	20	0.57333687
2	0	2	20	0.56357659
2	1	1	20	0.57029270
2	1	2	18	0.56803760

ONRET	SUNKCOST	SOURCECH	N	RELAT6
1	0	1	20	0.53241509
1	0	2	20	0.55846833
1	1	1	20	0.59049103
1	1	2	21	0.53785634
2	0	1	20	0.57825953
2	0	2	20	0.56529558
2	1	1	20	0.57582104
2	1	2	18	0.57160669

PER	SOURCECH	N	MSDEP	PIDEP
3	1	40	23.7750000	7.45000000
3	2	41	22.9268293	7.87804878
7	1	40	24.4750000	7.30000000
7	2	38	22.0000000	7.76315789

PER	SOURCECH	N	ATA2	TR26
3	1	40	12.6250000	5.02500000
3	2	41	12.4878049	5.87804878
7	1	40	12.6750000	5.25000000
7	2	38	12.4736842	5.78947368

PER	SOURCECH	N	RELAT1	RELAT2
3	1	40	0.59880253	0.58606703
3	2	41	0.59082792	0.57802645
7	1	40	0.58341435	0.59250531
7	2	38	0.59221274	0.58016712

PER	SOURCECH	N	RELAT3	RELAT4
3	1	40	0.53834410	0.53031295
3	2	41	0.52797638	0.52390640
7	1	40	0.58153023	0.59481939
7	2	38	0.57871888	0.58887283

PER	SOURCECH	N	RELAT5	RELAT6
3	1	40	0.54169956	0.53860740
3	2	41	0.52773089	0.52621309
7	1	40	0.59397369	0.59988594
7	2	38	0.58473116	0.59169592

ONRET	PER	SOURCECH	N	MSDEP	PIDEP
1	3	1	20	32.4500000	9.3000000
1	3	2	22	27.7272727	9.8181818
1	7	1	20	32.5500000	9.6500000
1	7	2	19	27.1052632	10.2105263
2	3	1	20	15.1000000	5.6000000
2	3	2	19	17.3684211	5.6315789
2	7	1	20	16.4000000	4.9500000
2	7	2	19	16.8947368	5.3157895

ONRET	PER	SOURCECH	N	ATA2	TR26
1	3	1	20	12.9000000	4.7000000
1	3	2	22	11.9090909	5.7272727
1	7	1	20	12.8000000	5.2500000
1	7	2	19	12.5263158	5.6842105
2	3	1	20	12.3500000	5.3500000
2	3	2	19	13.1578947	6.0526315
2	7	1	20	12.5500000	5.2500000
2	7	2	19	12.4210526	5.8947368

ONRET	PER	SOURCECH	N	RELAT1	RELAT2
1	3	1	20	0.60214203	0.59399701
1	3	2	22	0.57620185	0.55405862
1	7	1	20	0.58249361	0.58995518
1	7	2	19	0.58555918	0.58129821
2	3	1	20	0.59546304	0.57813705
2	3	2	19	0.60776336	0.60577867
2	7	1	20	0.58433510	0.59505543
2	7	2	19	0.59886631	0.57903603

ONRET	PER	SOURCECH	N	RELAT3	RELAT4
1	3	1	20	0.53700146	0.52917676
1	3	2	22	0.50606555	0.51309306
1	7	1	20	0.58966428	0.58740268
1	7	2	19	0.57863227	0.58728997
2	3	1	20	0.53968674	0.53144913
2	3	2	19	0.55334682	0.53642712
2	7	1	20	0.57339618	0.60223611
2	7	2	19	0.57880550	0.59045568

ONRET	PER	SOURCECH	N	RELAT5	RELAT6
1	3	1	20	0.53354129	0.53362333
1	3	2	22	0.51308466	0.51369268
1	7	1	20	0.59417565	0.58928279
1	7	2	19	0.58277262	0.58753214
2	3	1	20	0.54985783	0.54359147
2	3	2	19	0.54468970	0.54071041
2	7	1	20	0.59377173	0.61048909
2	7	2	19	0.58668970	0.59585970

SUNKCOST	PER	SOURCECH	N	MSDEP	PIDEP
0	3	1	20	23.7500000	7.00000000
0	3	2	20	20.6500000	7.85000000
0	7	1	20	25.8500000	8.10000000
0	7	2	20	17.6000000	7.75000000
1	3	1	20	23.8000000	7.90000000
1	3	2	21	25.0952381	7.90476190
1	7	1	20	23.1000000	6.50000000
1	7	2	18	26.8888889	7.77777778

SUNKCOST	PER	SOURCECH	N	ATA2	TR26
0	3	1	20	12.9000000	5.60000000
0	3	2	20	12.6500000	6.00000000
0	7	1	20	12.7000000	5.70000000
0	7	2	20	13.1000000	6.25000000
1	3	1	20	12.3500000	4.45000000
1	3	2	21	12.3333333	5.76190476
1	7	1	20	12.6500000	4.80000000
1	7	2	18	11.7777778	5.27777778

SUNKCOST	PER	SOURCECH	N	RELAT1	RELAT2
0	3	1	20	0.58405394	0.58000600
0	3	2	20	0.59489045	0.59004805
0	7	1	20	0.56922150	0.59007617
0	7	2	20	0.59489183	0.58755568
1	3	1	20	0.61355113	0.59212806
1	3	2	21	0.58695884	0.56657730
1	7	1	20	0.59760720	0.59493444
1	7	2	18	0.58923598	0.57195761

SUNKCOST	PER	SOURCECH	N	RELAT3	RELAT4
0	3	1	20	0.51733781	0.51367244
0	3	2	20	0.54179135	0.53609979
0	7	1	20	0.57634601	0.59559706
0	7	2	20	0.58004308	0.58525434
1	3	1	20	0.55935039	0.54695345
1	3	2	21	0.51481928	0.51229366
1	7	1	20	0.58671445	0.59404173
1	7	2	18	0.57724756	0.59289336

SUNKCOST	PER	SOURCECH	N	RELAT5	RELAT6
0	3	1	20	0.52410922	0.51625556
0	3	2	20	0.53757940	0.53620351
0	7	1	20	0.59017765	0.59441906
0	7	2	20	0.58461300	0.58756040
1	3	1	20	0.55928990	0.56095924
1	3	2	21	0.51835136	0.51669841
1	7	1	20	0.59776973	0.60535283
1	7	2	18	0.58486246	0.59629094

ONRET	SUNKCOST	PER	SOURCECH	N	MSDEP
1	0	3	1	10	32.5000000
1	0	3	2	10	25.0000000
1	0	7	1	10	35.7000000
1	0	7	2	10	20.6000000
1	1	3	1	10	32.4000000
1	1	3	2	12	30.0000000
1	1	7	1	10	29.4000000
1	1	7	2	9	34.3333333
2	0	3	1	10	15.0000000
2	0	3	2	10	16.3000000
2	0	7	1	10	16.0000000
2	0	7	2	10	14.6000000
2	1	3	1	10	15.2000000
2	1	3	2	9	18.5555556
2	1	7	1	10	16.8000000
2	1	7	2	9	19.4444444

ONRET	SUNKCOST	PER	SOURCECH	N	PIDEP
1	0	3	1	10	8.4000000
1	0	3	2	10	10.6000000
1	0	7	1	10	10.9000000
1	0	7	2	10	9.8000000
1	1	3	1	10	10.2000000
1	1	3	2	12	9.1666667
1	1	7	1	10	8.4000000
1	1	7	2	9	10.6666667

ONRET	SUNKCOST	PER	SOURCECH	N	PIDEF
2	0	3	1	10	5.6000000
2	0	3	2	10	5.1000000
2	0	7	1	10	5.3000000
2	0	7	2	10	5.7000000
2	1	3	1	10	5.6000000
2	1	3	2	9	6.2222222
2	1	7	1	10	4.6000000
2	1	7	2	9	4.8888889

ONRET	SUNKCOST	PER	SOURCECH	N	ATA2
1	0	3	1	10	12.7000000
1	0	3	2	10	12.3000000
1	0	7	1	10	12.3000000
1	0	7	2	10	13.0000000
1	1	3	1	10	13.1000000
1	1	3	2	12	11.5833333
1	1	7	1	10	13.3000000
1	1	7	2	9	12.0000000
2	0	3	1	10	13.1000000
2	0	3	2	10	13.0000000
2	0	7	1	10	13.1000000
2	0	7	2	10	13.2000000
2	1	3	1	10	11.6000000
2	1	3	2	9	13.3333333
2	1	7	1	10	12.0000000
2	1	7	2	9	11.5555556

ONRET	SUNKCOST	PER	SOURCECH	N	TR26
1	0	3	1	10	5.8000000
1	0	3	2	10	5.5000000
1	0	7	1	10	5.7000000
1	0	7	2	10	6.0000000
1	1	3	1	10	3.6000000
1	1	3	2	12	5.9166667
1	1	7	1	10	4.8000000
1	1	7	2	9	5.3333333
2	0	3	1	10	5.4000000
2	0	3	2	10	6.5000000
2	0	7	1	10	5.7000000
2	0	7	2	10	6.5000000
2	1	3	1	10	5.3000000
2	1	3	2	9	5.5555556
2	1	7	1	10	4.8000000
2	1	7	2	9	5.2222222

ONRET	SUNKCOST	PER	SOURCECH	N	RELAT1
1	0	3	1	10	0.57556225
1	0	3	2	10	0.58919066
1	0	7	1	10	0.55076655
1	0	7	2	10	0.59613443
1	1	3	1	10	0.62872180
1	1	3	2	12	0.56537785
1	1	7	1	10	0.61422067
1	1	7	2	9	0.57380889
2	0	3	1	10	0.59254562
2	0	3	2	10	0.60059023
2	0	7	1	10	0.58767645
2	0	7	2	10	0.59364924
2	1	3	1	10	0.59838046
2	1	3	2	9	0.61573350
2	1	7	1	10	0.58099374
2	1	7	2	9	0.60466307

ONRET	SUNKCOST	PER	SOURCECH	N	RELAT2
1	0	3	1	10	0.56495916
1	0	3	2	10	0.57744995
1	0	7	1	10	0.56729991
1	0	7	2	10	0.58887560
1	1	3	1	10	0.62303486
1	1	3	2	12	0.53456584
1	1	7	1	10	0.61261046
1	1	7	2	9	0.57287889
2	0	3	1	10	0.59505284
2	0	3	2	10	0.60264614
2	0	7	1	10	0.61285244
2	0	7	2	10	0.58623576
2	1	3	1	10	0.56122126
2	1	3	2	9	0.60925926
2	1	7	1	10	0.57725843
2	1	7	2	9	0.57103632

ONRET	SUNKCOST	PER	SOURCECH	N	RELAT3
1	0	3	1	10	0.50671937
1	0	3	2	10	0.52981802
1	0	7	1	10	0.56513406
1	0	7	2	10	0.57765097
1	1	3	1	10	0.56728355
1	1	3	2	12	0.48627183
1	1	7	1	10	0.61419450
1	1	7	2	9	0.57972260
2	0	3	1	10	0.52795625
2	0	3	2	10	0.55376468
2	0	7	1	10	0.58755797
2	0	7	2	10	0.58243519

ONRET	SUNKCOST	PER	SOURCECH	N	RELAT3
2	1	3	1	10	0.55141723
2	1	3	2	9	0.55288254
2	1	7	1	10	0.55923440
2	1	7	2	9	0.57477252

ONRET	SUNKCOST	PER	SOURCECH	N	RELAT4
1	0	3	1	10	0.50000000
1	0	3	2	10	0.52798035
1	0	7	1	10	0.56316535
1	0	7	2	10	0.58769050
1	1	3	1	10	0.55835352
1	1	3	2	12	0.50068698
1	1	7	1	10	0.61164001
1	1	7	2	9	0.58684493
2	0	3	1	10	0.52734488
2	0	3	2	10	0.54421922
2	0	7	1	10	0.62802877
2	0	7	2	10	0.58281818
2	1	3	1	10	0.53555339
2	1	3	2	9	0.52776923
2	1	7	1	10	0.57644344
2	1	7	2	9	0.59894180

ONRET	SUNKCOST	PER	SOURCECH	N	RELAT5
1	0	3	1	10	0.50909091
1	0	3	2	10	0.53020010
1	0	7	1	10	0.57280911
1	0	7	2	10	0.58703152
1	1	3	1	10	0.55799166
1	1	3	2	12	0.49882179
1	1	7	1	10	0.61554219
1	1	7	2	9	0.57804051
2	0	3	1	10	0.53912754
2	0	3	2	10	0.54495871
2	0	7	1	10	0.60754620
2	0	7	2	10	0.58219447
2	1	3	1	10	0.56058813
2	1	3	2	9	0.54439079
2	1	7	1	10	0.57999727
2	1	7	2	9	0.59168440

ONRET	SUNKCOST	PER	SOURCECH	N	RELAT6
1	0	3	1	10	0.50591631
1	0	3	2	10	0.52662937
1	0	7	1	10	0.55891388
1	0	7	2	10	0.59030729
1	1	3	1	10	0.56133035
1	1	3	2	12	0.50291211
1	1	7	1	10	0.61965171
1	1	7	2	9	0.58444864
2	0	3	1	10	0.52659481
2	0	3	2	10	0.54577764
2	0	7	1	10	0.62992424
2	0	7	2	10	0.58481352
2	1	3	1	10	0.56058813
2	1	3	2	9	0.53508015
2	1	7	1	10	0.59105395
2	1	7	2	9	0.60813323

REFERENCES

- Ahtola, Olli T. (1980), "An Empirical Investigation of the Evaluative Aspect of Certainty/Uncertainty," in Jerry Olson (ed.), Advances in Consumer Research. Vol. 7. Ann Arbor, MI: Association for Consumer Research, 345-349.
- Ajzen, Icek, and Martin Fishbein (1977), "Attitude-Behavior Relations: A Theoretical Analysis and Review of Empirical Research," Psychological Bulletin, 84 (September), 888-918.
- Anderson, T.W. (1958) An Introduction to Multivariate Statistical Analysis. New York, NY: Wiley.
- Arkes, Hal R., and Catherine Blumer (1985), "The Psychology of Sunk Cost," Organizational Behavior and Human Decision Processes, 35, 124-140.
- Assael, Henry (1984), Consumer Behavior and Marketing Action. Boston, MA: Wadsworth.
- Bagozzi, Richard P. and Robert E. Burnkrant (1979), "Attitude Measurement and Behavior Change: A Reconsideration of Attitude Organization and its Relationship to Behavior," in William Wilkie (ed.), Advances in Consumer Research. Vol. 6. Ann Arbor, MI: Association for Consumer Research, 295-301.
- Bandura, Albert (1977), "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," Psychological Review, 54, 191-215.
- Bandura, Albert (1982), "Self-Efficacy Mechanism in Human Agency," American Psychologist, 37, 122-147.
- Bauer, Raymond A. (1967), "Consumer Behavior as Risk Taking," in Donald Cox (ed.), Risk Taking and Information Handling in Consumer Behavior. Boston, MA: Harvard University Press, 23-33.
- Bellenger, Danny N., Earle Steinberg, and Wilber W. Stanton (1976), "The Congruence of Store Image and Self Image," Journal of Retailing, 52 (Spring), 17-32.
- Bem, D.J. (1972), "Self Perception Theory," in L. Berkowitz (ed.) Advances in Experimental Social Psychology, Vol. 6. New York, NY: Academic Press, 63-87.

- Bem, D.J. (1967), "Self-perception: An Alternative Interpretation of Cognitive Dissonance Phenomena," Psychological Review, 74, 183-200.
- Bender, Wesley C. (1964), "Consumer Purchase Costs--Do Retailers Recognize Them?" Journal of Retailing, 40 (Spring), 1-8.
- Berry, Leonard (1986), "Retail Businesses are Service Businesses," Journal of Retailing, 62 (Spring), 3-6.
- Blattberg, Robert, and Subrato Sen (1974), "Are Stochastic Brand Choice Models Useful Approximations of Buyer Behavior?" American Marketing Association Proceedings. 241-245.
- Brehm, J.E. (1956), "Post-Decision Changes in the Desirability of Alternatives," Journal of Abnormal and Social Psychology, 52 (July), 384-389.
- Brim, Orville G., Jr. (1955), "Attitude Content-Intensity and Probability Expectations," American Sociological Review, 20 (February), 66-76.
- Cohen, Joel B., Martin Fishbein, and Olli T. Ahtola (1972), "The Nature and Uses of Expectancy-Value Models in Consumer Attitude Research," Journal of Marketing Research, 9 (November), 456-460.
- Cunningham, Scott M. (1967a), "The Major Dimensions of Perceived Risk in Donald Cox (ed.), Risk Taking and Information Handling in Consumer Behavior. Cambridge, MA: Harvard University Press, 82-108.
- Cunningham, Scott M. (1967b), "Perceived Risk and Brand Loyalty," in D. Cox ed., Risk Taking and Information Handling in Consumer Behavior. Cambridge, MA: Harvard University Press, 507-523.
- Day, George S. (1969), "A Two-Dimensional Concept of Brand Loyalty," Journal of Advertising Research, 9 (September), 29-35.
- Demsetz, Harold (1962), "The Effects of Consumer Experience on Brand Loyalty and the Structure of Market Demand," Econometrica, 30 (January), 22-33.
- Ehrlich, Danuta (1957), "Post-decision Exposure to Relevant Information," Journal of Abnormal and Social Psychology, 54 (January), 98-102.
- Ehrlich, Howard J. (1969), "Attitudes, Behavior, and the Intervening Variables," American Sociologist, 4 (February), 29-34.
- Engel, James R. (1963), "Are Automobile Purchasers Dissonant Consumers?" Journal of Marketing, 27 (April), 55-58.
- Engel, James R. and Roger Blackwell (1982), Consumer Behavior. Chicago, IL: Dryden Press.

- Fazio, Russell H. (1986), "How do Attitudes Guide Behavior?" in R.M. Sorrentino and E.T. Higgins (eds.), The Handbook of Motivation and Cognition: Foundations of Social Behavior. New York, NY: Guilford, 204-243.
- Fazio, Russell L, David Sanbonmatsu, Martha C. Powell, and Frank R. Kardes (1986). "On the Automatic Activation of Attitudes," Journal of Personality and Social Psychology, 50 (2), 229-238.
- Fazio, Russell H. and Mark P. Zanna (1981), "Direct Experience and Attitude Behavior Consistency," in L. Berkowitz (ed.) Advances in Experimental Social Psychology, Vol. 14. New York, NY: Academic Press, 161-202.
- Festinger, Leon (1957), A Theory of Cognitive Dissonance. Stanford, CA: Stanford University Press.
- Frank, Ronald E. (1962), "Brand Loyalty as a Probability Process," Journal of Business. 32, 43-56.
- Frank, Ronald E. (1967), "Correlates of Buying Behavior for Grocery Products," Journal of Marketing, 7 (June), 48-53.
- Furse, David, Girish Punj and David Stewart (1984), "A Topology of Individual Search Strategies Among Purchasers of New Automobiles," Journal of Consumer Research, 10 (March), 417-431.
- Greenwald, Anthony G. (1968), "On Defining Attitude and Attitude Theory," in A.G. Greenwald, T.C. Brock, and T.M. Ostrom (eds.), Psychological Foundations of Attitudes. New York, NY: Academic Press, 62-73.
- Howard, John A. and Jagdish Sheth (1969), The Theory of Buyer Behavior, New York, NY: Wiley.
- Jackson, Barbara B. (1986), Winning and Keeping Industrial Customers: The Dynamics of Customer Relationships. Lexington, MA: Lexington
- Jacoby, Jacob (1971), "Brand Loyalty: A Conceptual Definition," Proceedings, 79th American Psychological Association Convention, 1, 655-656.
- Jacoby, Jacob and Robert W. Chestnut (1978), Brand Loyalty Measurement and Management. New York, NY: John Wiley and Sons.
- Jacoby, Jacob and David B. Kyner (1973), "Brand Loyalty Versus Repeat Purchase Behavior," Journal of Marketing Research, 10 (February), 1-9.
- Jacoby, Jacob and Jerry C. Olson (1970). "An Attitudinal Model of Brand Loyalty: Conceptual Underpinnings and Instrumentation Research," Purdue Papers in Consumer Psychology. (159), Purdue University.

- Kahn, Barbara E., Monohar U. Kalwani, and Donald G. Morrison (1986), "Measuring Variety-seeking and Reinforcement Behaviors Using Panel Data," Journal of Marketing Research, 23 (May), 89-100.
- Kassarjian, Harold and Joel B. Cohen (1965), "Cognitive Dissonance and Consumer Behavior," California Management Review, 8 (Fall), 55-64.
- Katona, George and Eva Mueller (1955), "A Study of Purchase Decisions," in Lincoln Clark (ed.), The Dynamics of Consumer Reaction. Consumer Behavior, Vol. 1. New York, NY: New York University Press.
- Kotler, Phillip (1984), Marketing Management: Analysis, Planning, and Control, 5th ed. Englewood Cliffs, NJ: Prentice Hall.
- Lord, Charles G., Lee Ross and Mark R. Lepper (1979), "Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence," Journal of Personality and Social Psychology, 37 (11), 2098-2109.
- Lutz, Richard J. and Patrick Reilly (1973), "An Exploration of the Effects of Perceived Social and Performance Risk on Consumer Information Acquisition," in Scott Ward and Peter Wright (eds.), Advances in Consumer Research. Ann Arbor, MI: Association for Consumer Research, 393-405.
- Lutz, Richard J., and Paul R. Winn (1975). "Developing a Bayesian Measure of Brand Loyalty: A Preliminary Report, in R. C. Corhan, ed., 1974 Combined Proceedings. Chicago, IL: American Marketing Association, 104-108.
- McArthur, L.A., C.A. Kiesler, and B.P. Cook (1969), "Acting on an Attitude as a Function of Self-Perception and Inequity," Journal of Personality and Social Psychology, 12, 295-302.
- Moore, William L., and Donald R. Lehman (1980), "Individual Differences in Search Behavior for a Nondurable," Journal of Consumer Research, 7 (December), 296-307.
- Newman, Joseph W., and Richard Staelin (1971), "Multivariate Analysis of Differences in Buyer Decision Time," Journal of Marketing Research, 8 (May), 192-198.
- Newman, Joseph W., and Richard Staelin (1972), "Prepurchase Information Seeking for New Cars and Major Household Appliances," Journal of Marketing Research, 9 (August), 249-257.
- Newman, Joseph W., and Richard A. Werbel (1973), "Multivariate Analysis of Brand Loyalty for Major Household Appliances," Journal of Marketing Research, 10 (November), 404-409.
- Osgood, C.E., G.J. Suci, and P. Tannenbaum (1957), The Measurement of Meaning. Urbana, IL: University of Illinois Press.

- Park, C. Whan and Parker Lessig (1981), "Familiarity and its Impact on Consumer Biases and Heuristics," Journal of Consumer Research, 8 (September), 223-230.
- Petty, Richard E., and John T. Cacioppo (1981), Attitudes and Persuasion: Classic and Contemporary Approaches. Dubuque, IA: William Brown.
- Porter, Michael E. (1980), Competitive Strategy: Techniques for Analyzing Industries and Competitors. New York, NY: Mac Millan.
- Powell, Martha C., and Russell H. Fazio (1984), Attitude Accessibility as a Function of Repeated Attitudinal Expression, Personality and Social Psychology Bulletin, 10 (March), 139-148.
- Ratchford, Brian T. (1980), "The Value of Information for Selected Appliances," Journal of Marketing Research, 17 (February), 14-25.
- Ryan, Michael J., and E.H. Bonfield (1975), "The Fishbein Extended Model and Consumer Behavior," Journal of Consumer Research, 2 (September), 118-136.
- Sadler, O., and A. Tesser (1973), "Some Effects of Salience and Time Upon Interpersonal Hostility and Attraction During Social Isolation," Sociometry, 36, 99-112.
- Schlenker, B.R. (1980), Impression Management: The Self Concept, Social Identity, and Interpersonal Relations. Monterey, CA: Brooks/Cole.
- Sherif, Carolyn W., and Carl I. Hovland (1961), Social Judgment: Assimilation and Contrast Effects in Communication and Attitude Change. New Haven, CT: Yale University Press.
- Sherif, Carolyn W., Merrilea Kelley, H. Lewis Rodgers, Gian Sarup and Bennett I. Tittler (1973), "Personal Involvement, Social Judgment, and Action," Journal of Personality and Social Psychology, 27 (September), 311-327.
- Sheth, Jagdish, and C. Whan Park (1974), "A Theory of Multidimensional Brand Loyalty," in Scott Ward and Peter Wright (eds.), Advances in Consumer Research. Vol. 1. Ann Arbor, MI: Association for Consumer Research, 449-459.
- Shoemaker, Robert W. and F. Robert Shoaf (1975), "Behavioral Changes in the Trial of New Products," Journal of Consumer Research, 2 (September), 104-109.
- Sirgy, M. Joseph, and A. Coshun Sanli (1985), "A Path Analytic Model of Store Loyalty Involving Self-Concept, Store Image, Geographic Loyalty and Socioeconomic Status," Journal of the Academy of Marketing Science, 13 (Summer), 265-291.

- Smith, Robert E., and William Swinyard (1983), "Attitude Behavior Consistency: The Impact of Product Trial versus Advertising," Journal of Marketing Research, 20 (August), 257-267.
- Staw, Barry M. (1976) "Knee-Deep in the Big Muddy: A Study of Escalating Commitment to a Chosen Course of Action," Organizational Behavior and Human Performance, 16, 27-44.
- Staw, Barry M. (1981), "The Escalation of Commitment to a Course of Action," Academy of Management Review, 6 (No. 4), 577-587.
- Staw, Barry M., and F. Fox (1977), "Escalation: Some Determinants of Commitment to a Previously Chosen Course of Action," Human Relations 30, 131-150.
- Stern, Bruce L., Ronald F. Bush, and Joseph F. Hair, Jr. (1977), "The Self-Image / Store-Image Matching Process: An Empirical Test," Journal of Business, 50 (January), 63-69.
- Stuteville, John R. (1972), "Psychic Defense Against High Fear Appeals: A Key Marketing Variable," Journal of Marketing, 34 (April), 39-45.
- Tarpey, Lawrence X., Sr., and J. Paul Peter (1975), "A Comparative Analysis of Three Consumer Decision Strategies," Journal of Consumer Research, 2 (June), 29-37.
- Tesser A., and Conlee M.C. (1975), "Some Effects of Time and Thought on Attitude Polarization," Journal of Personality and Social Psychology, 31, 262-270.
- Tversky, Amos, and Daniel Kahneman (1981), "The Framing of Decisions and the Psychology of Choice," Science, 211 (January 30), 453-458.
- VonWeizsacker, C. Christlan (1984), "The Cost of Substitution," Econometrica, 52 (September), 1085-1116.
- Warland, Rex H., and John Sample (1973), "Response Certainty as a Moderator Variable in Attitude Measurement," Rural Sociology, 38 (Summer), 174-186.
- Wicker, Allen W. (1969), "Attitude versus Actions: The Relationship of Verbal and Overt Behavioral Responses to Attitude Objects," Journal of Social Issues, 25 (Autumn), 41-78.
- Wood, Wendy (1982), "Retrieval of Attitude--Relevant Information From Memory: Effects on Susceptibility to Persuasion and on Intrinsic Motivation," Journal of Personality and Social Psychology, 42 (May), 798-810.

BIOGRAPHICAL SKETCH

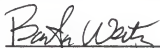
Alan Dick was born January 6, 1958, in Miami, Florida. He graduated from Southwest Miami Senior High School on June 12, 1976. He attended Miami Dade Community College part-time while managing a photographic studio during 1977 and 1978. Alan entered the University of Florida's College of Business Administration as a marketing major in the fall of 1978. He received his Bachelor of Science in Business Administration degree with high honors March 21, 1981. After completing his B.S.B.A, Alan entered the masters program in marketing. His master's thesis was titled Memory Effects on Inferential Processes During Consumer Choice. He received his Master of Arts degree in business administration with specialization in marketing August 10, 1985. After receiving his M.A. degree, Alan was admitted into the Ph.D. program.

During his term in the master's and Ph.D. programs, Alan served as a graduate research assistant. He assisted with various academic consumer behavior research projects, undergraduate and graduate level marketing classes, executive education classes and with the compilation of a consumer behavior textbook authored by Dr. William Wilkie. Alan has also written software for simplifying classroom administration and conducting experiments in consumer behavior. Additionally, he set up and supervised a computer-based behavioral laboratory at the University of Florida's Center for Consumer Research.

Alan accepted an offer to become assistant professor of marketing at the State University of New York at Buffalo in the Fall of 1987. There he has taught undergraduate and M.B.A. level courses in Marketing Research and Consumer Behavior. Alan returned to the University of Florida in June of 1989 to defend his Ph.D. dissertation. He received his degree in August of 1989.

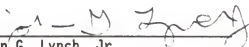
Alan's hobbies include photography, computer programming, playing racquetball, squash, tennis and amateur jai-alai. His parents, Barry and Sharon Dick, and his sister, Dr. Susan Spitzer, live in Miami, Florida.

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Barton Weitz, Chairman
Professor of Marketing

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John G. Lynch, Jr.
Associate Professor of Marketing

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Richard Romano
Associate Professor of Economics

This dissertation was submitted to the Graduate Faculty of the Department of Marketing in the College of Business Administration and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 1989



Dean, Graduate School